Crossing the Skills Gap: CIOs complain that there's a big difference between what colleges teach and what IT employers want. PAGE 28

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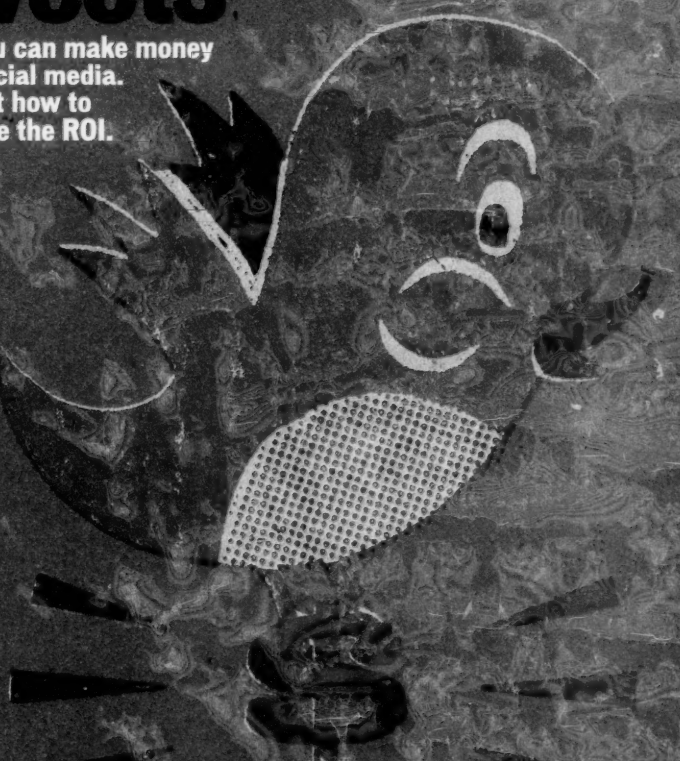
Cash in on Tweets

Yes, you can make money with social media. Find out how to measure the ROI. PAGE 22



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SEPTEMBER 21/28, 2009
VOL. 43, NO. 29 $5/COPY

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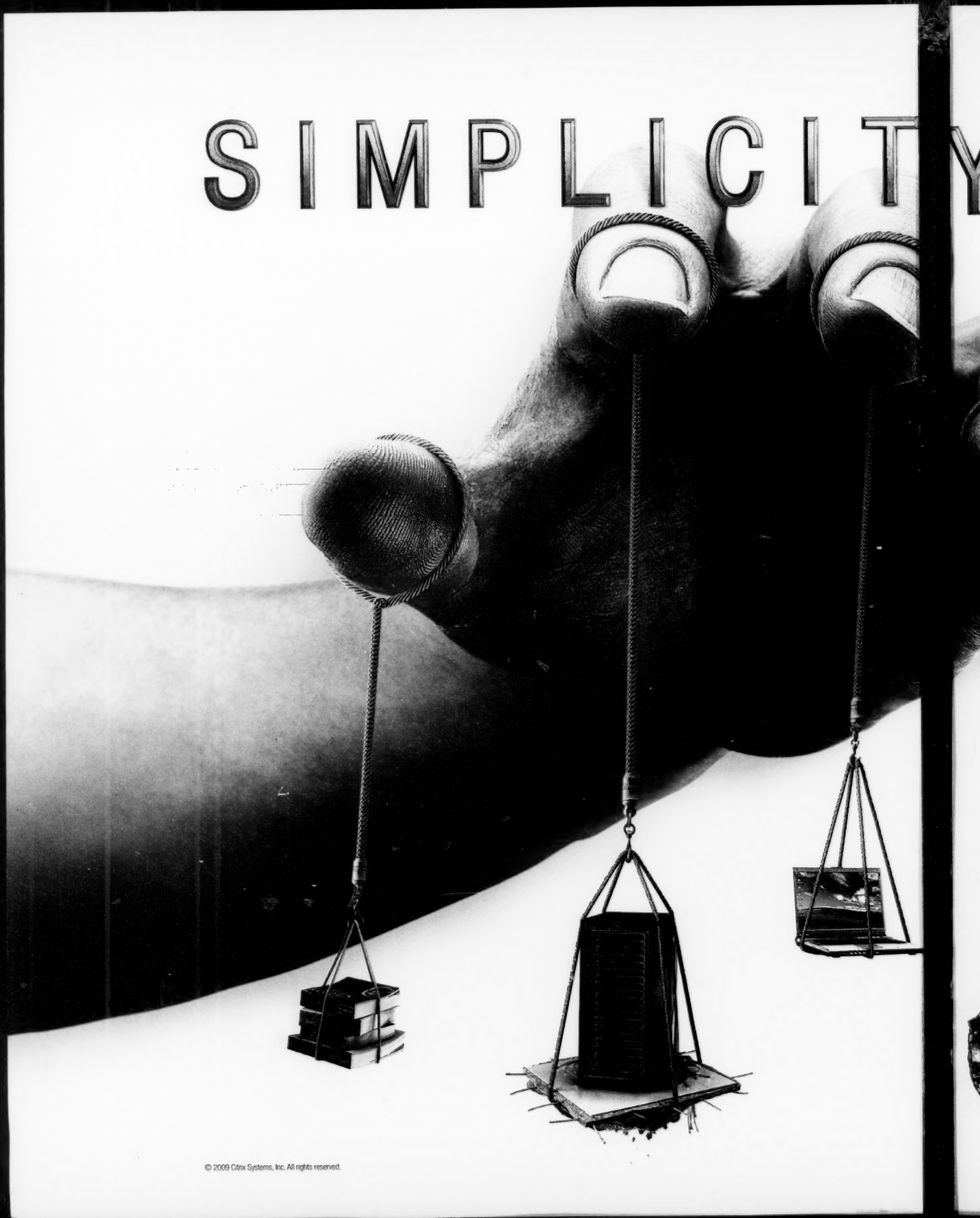

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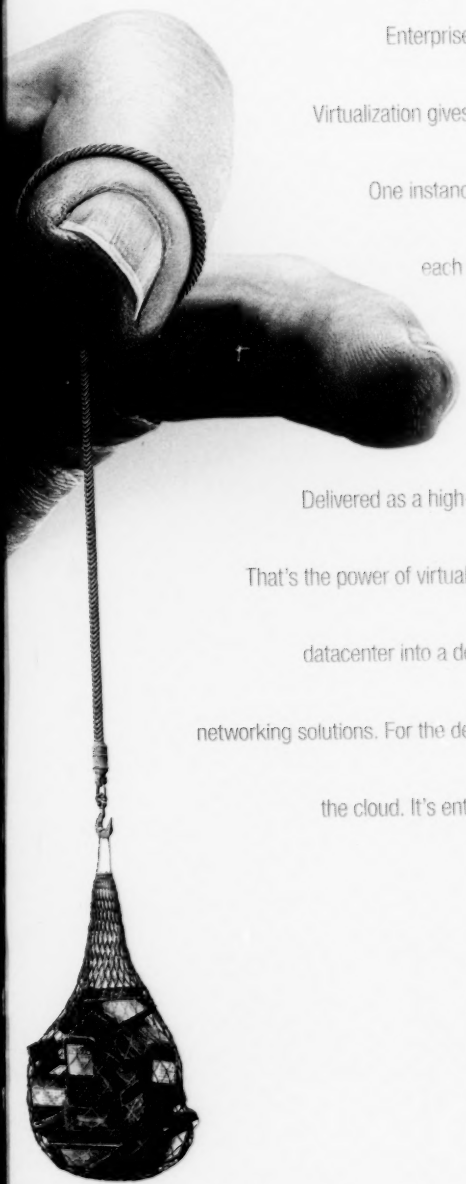
Y IS POWER

The power of a virtualized enterprise.



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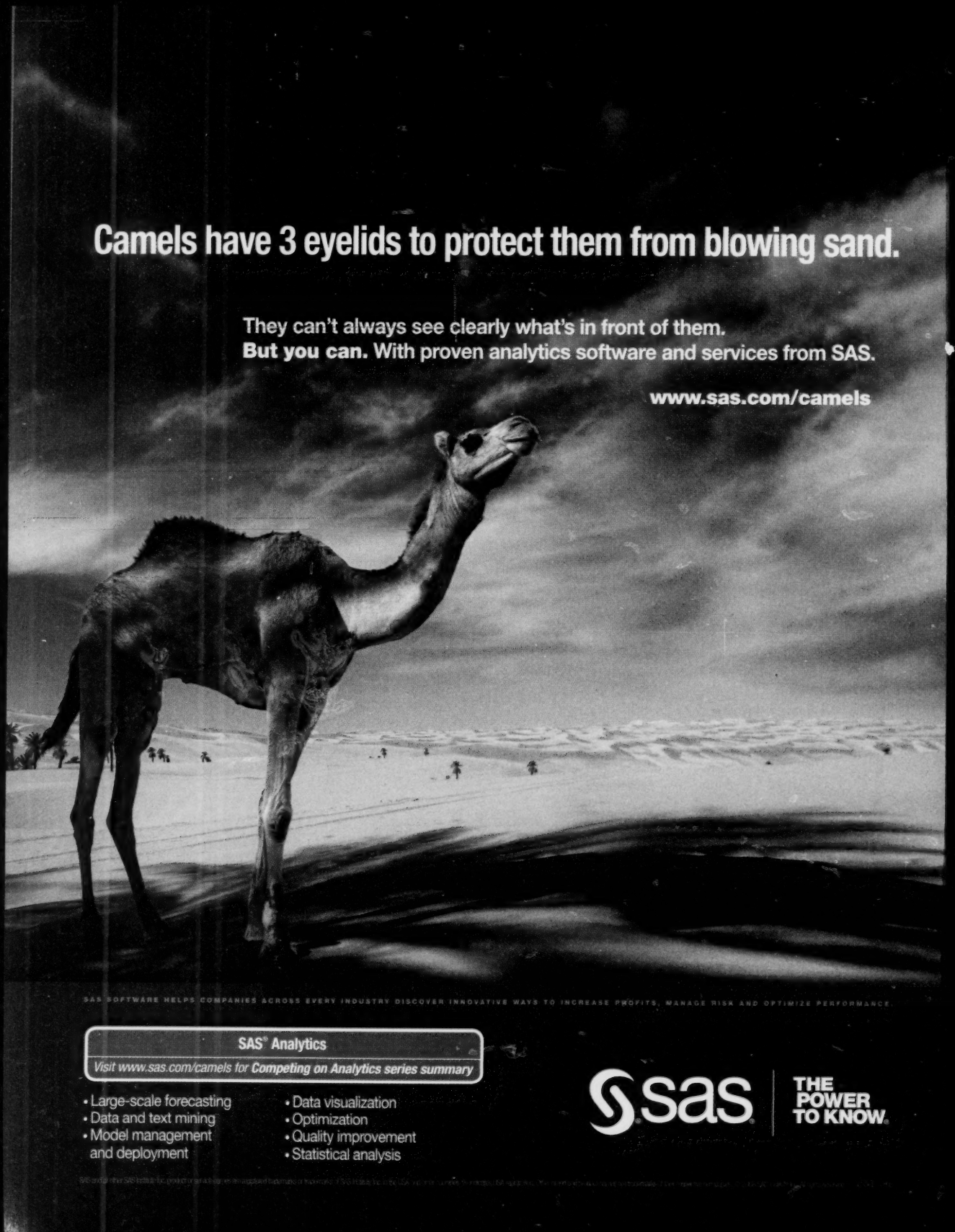
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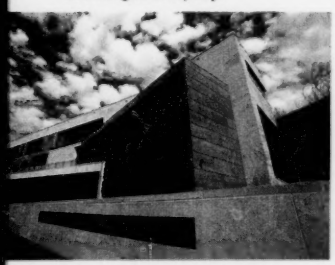

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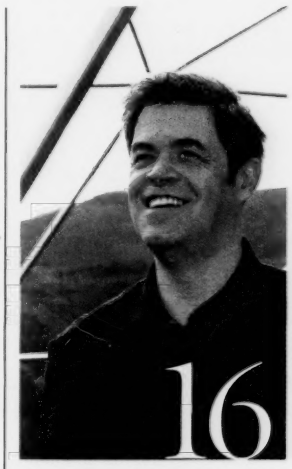

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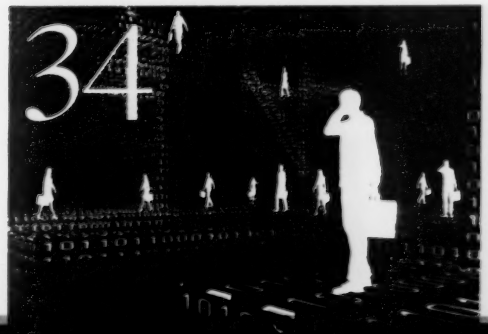

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Thinking outside the box depends on what's in the box.

Today, businesses are struggling to keep up with the energy demands of their server rooms. This isn't simply a question of cost. It is increasingly impacting day-to-day operations. A recent study found that an estimated half of all businesses have experienced IT outages due to power and cooling issues.[1]

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[1]Source: IDC Market Analysis #215870, Volume 1, December 2008, Worldwide Server Energy Expense 2008–2012 Forecast. [2]Return on investment and power savings calculation based on 11:1 consolidation customer configurations and environment. For more information, visit www.ibm.com/smarterplanet/claims. IBM, the IBM logo, ibm.com and BladeCenter are trademarks of International Business Machines copytrade.shtml. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the United States and other countries. © International Business Machines

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■ ONLINE CHATTER

RESPONSES TO:

The Unspoken Truth About Managing Geeks

Sept. 8, 2009

As an IT pro, I'd say this article hit the nail directly on the head with nearly every word. By their very job description, programmers are experts in logic. We know when we're being fed a line of b.s. or when something is a bad idea.
■ **Submitted by:** *Anonymous*

I've seen most of the types of behavior described here over the years in one job or another and think this is a somewhat accurate description. When people trained to do ordered and logical tasks are presented with disorder and illogic, strange things may happen.
■ **Submitted by:** *Anon E Mouse*

I wish management in every company would read this article. I'd like to work for the author, as he actually gets geeks!
■ **Submitted by:** *Anonymous*

I think the author got it right for the most part. But in my 30-some years in the biz, I have seen very few CEOs who would be likely to take the author's advice on how to deal with their IT folks. At best, CEOs ignore IT as much as possible. At worst, they try to make it run like an accounting department.
■ **Submitted by:** *Anonymous*

I saw myself a number of times in this article, as someone helping customers implement software, hardware and training. Oftentimes the problem in an organization is micromanaging by managers who don't know what they are doing and are afraid to say so. The best managers say, "You're the expert. How would you implement this for our situation?" People like that impress me! I'll give them 110 percent and then some.
■ **Submitted by:** *Anonymous*

Bravo, Jeff Ello! One of the best opinion pieces I have ever read!
■ **Submitted by:** *John*

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Which Net OS Will Rule the Enterprise?

Sure, familiarity with Windows counts a lot in the risk-averse corporate world. But cost, Google's Chrome Operating System and cloud computing just might tip the balance in favor of Linux.

Your XP-to-Windows 7 Upgrade Path: Buy a New PC

With no reasonable upgrade route from XP, the only way most users will get Windows 7 is by buying a new PC.

Open Source and Medical Records

The open-source VistA health records software may yet be a huge hit.

Six Easy Laptop Repairs

A step-by-step guide to fixing broken keys, frayed power cables, noisy fans and other damage.

Norton Internet Security 2010

REVIEW: The latest version of NIS looks much the same but offers a new reputation-based security strategy under the hood.

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News Digest

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THE WEEK AHEAD

MONDAY: The 17th annual embedded systems conference, ESC Boston 2009, begins.

TUESDAY: The EmTech@MIT emerging technologies conference, organized by MIT's *Technology Review* magazine, opens in Cambridge, Mass. Also, Progress Software is expected to release its fiscal third-quarter financial results.

WEDNESDAY: Red Hat is scheduled to announce financial results for the second quarter of its 2010 fiscal year.

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CLOUD COMPUTING

Fed Plan Helps Google in Cloud Race With Microsoft

GOOGLE INC.'S plan to design a set of cloud services for federal government agencies could give the company a boost in its effort to take on Microsoft Corp. on the desktop.

The company announced last week that it plans to design versions of its Google Apps hosted software that meet the unique needs of the U.S. government.

The applications will be hosted in Google data centers and will be available next year, said Matthew Glotzbach, director of product management at Google's enterprise unit.

Though Google has yet to sign any government agreements, Glotzbach said the company is currently in talks with several agencies about the services.

Any interest among government IT officials "helps validate Google Apps," said Ezra Gottheil, an analyst at Technology Business Research Inc. in Hampton, N.H.

Google's government applications announcement was followed last week by the long-awaited release of a beta version of Microsoft's online Office Web Apps.

"With this deal, Google may have stolen a step on Microsoft as they begin the process of rolling out Microsoft desktop applications as a service," said Dan Olds, an analyst at Gabriel Consulting Group Inc.

However, he added that Google continues to face questions from IT managers about whether cloud computing is secure enough for large organizations.

"There are still a lot of good reasons for businesses not to use cloud computing," Olds said. "Questions about security, availability, reliability and being locked into a single cloud provider are just a few of the factors that businesses need to consider."

Karen Evans, a government IT official in President George W. Bush's administration who was widely considered the de facto federal CIO, said cloud technology could significantly cut government IT costs, but she agreed that the security fears of IT managers must be allayed.

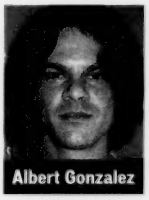
— Sharon Gaudin, with Jaikumar Vijayan and Robert McMillan of the IDG News Service

SECURITY

Suspect Pleads Guilty to Huge Data Thefts

ALBERT GONZALEZ has pleaded guilty to 20 counts of conspiracy, computer fraud, wire fraud, access device fraud and aggravated identity theft in connection with massive data breaches at TJX Companies Inc., Dave & Buster's Holdings Inc. and other retailers.

The U.S. Department of Justice said that 19 charges were filed in federal court in Boston; another, related to the Dave & Buster's theft, was filed in New York.


Albert Gonzalez

Gonzalez, 28, of Miami, faces 25 years in prison and fines of up to $250,000 for each of the charges. He is scheduled to be sentenced Dec. 8.

The plea deal also requires Gonzalez to forfeit more than $2.7 million in cash, as well as personal property.

Indictments against Gonzalez in a New Jersey court in connection with a major breach at Heartland Payment Systems Inc. are not part of the plea agreement.

– JAIKUMAR VIJAYAN, WITH GRANT GROSS OF THE IDG NEWS SERVICE

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DATA SECURITY

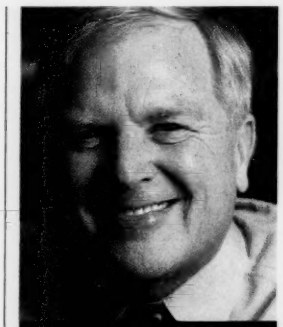
Heartland CEO: More Card Encryption Needed

THE TOP executive at Heartland Payment Systems Inc. last week called on credit card vendors, payment processors and retailers to embrace an encryption standard that would protect credit and debit card numbers.

Robert Carr, Heartland's chairman and CEO, told the U.S. Senate Homeland Security and Governmental Affairs Committee that industry guidelines today don't require encryption of credit card numbers during transit between retailers, payment processors and card issuers.

Earlier this year, Princeton, N.J.-based Heartland disclosed that a breach there exposed data stored on tens of millions of credit cards to a gang of hackers.

"I now know that this industry needs to, and can, do more to better protect it against the ever-more-sophisticated methods used by these cybercriminals," Carr said, adding that Heartland is deploying tamper-resistant point-of-sale terminals at its member retailers.



"I believe it is critical to implement new technology not just at Heartland, but industrywide."

"I believe it is critical to implement new technology, not just at Heartland, but industrywide," he added.

Last spring, the company also helped form the Payment Processor Information Sharing Council, where payment processors can exchange information about threats, vulnerabilities and best practices, Carr said.

The Senate hearing was held in part to determine whether new legislation is needed to fight cybercrime.

Carr didn't offer details about the Heartland breach during the hearing, but he did respond to some pointed questions from senators about the incident.

For example, Sen. Susan Collins (R-Maine) sought to find out how the company could be compromised from October 2006 to May 2008 without discovering the breach.

"There was no hint of fraudulent use of cards that came to our attention until toward the end of 2008," Carr responded. "Cybercriminals are very good at masking themselves."

Under questioning from Sen. Joe Lieberman (I-Conn.), Carr acknowledged that the company still hasn't determined exactly how many cards were compromised in the breach, which he called a "significant compromise."

Some analysts have said that more than 100 million cards may have been exposed, which would make it the biggest breach ever involving payment card data.

— Grant Gross, IDG News Service

Short Takes

Dell Inc. has agreed to pay $4 million and change its advertising, sales and finance operations to settle charges of fraudulent and deceptive business practices brought against the company by New York's office of the attorney general in 2007.

After announcing a first-quarter loss of $164.5 million, Palm Inc. announced that it will stop developing Windows Mobile-based handsets and focus solely on building devices that run its own WebOS software.

Broadcom Corp. filed a lawsuit against Emulex Corp. just months after abandoning a yearlong effort to buy the company. Emulex said it will "vigorously defend" itself against charges that it infringed on 10 Broadcom patents.

The U.S. Department of Homeland Security released rules that allow guards to search all electronic devices during border crossings, a day after the American Civil Liberties Union filed a lawsuit seeking information about border laptop searches.

BUSINESS INTELLIGENCE

IBM Unveils Midrange BI Tools

IBM LAST WEEK announced a business intelligence and planning software suite for midsize companies that aren't ready for complex enterprise-level systems but need more insight into their businesses than a spreadsheet can provide.

The new Cognos Express system includes three modules. It's managed through a Web-based console that reduces user dependence on IT, according to IBM.

Wood Ranch BBQ & Grill Inc., a California restaurant chain, installed Cognos Express about three weeks ago to gain better insight into its finances during these bleak economic times, said Mark Quandt, the company's vice president of finance.

The company had been using Microsoft Corp.'s Excel spreadsheet for financial tasks. "Excel is a great personal tool . . . [but] with 13 restaurants, we got to a point where we wanted to get a little more sophisticated in our analysis," Quandt said.

> **"Excel is a great personal tool . . . [but] we wanted to get a little more sophisticated in our analysis."**
> MARK QUANDT, WOOD RANCH BBQ & GRILL INC.

Wood Ranch doesn't anticipate having to add IT resources to support the IBM BI tool, which employs an Excel-like interface, he added.

The Wood Ranch installation could mark the start of a trend, according to Tim Harmon, an analyst at Forrester Research Inc., who projects that midmarket companies will invest heavily in BI as the economy improves and IT budgets rebound.

Cognos Express pricing starts at $12,000.

– CHRIS KANARACUS, IDG NEWS SERVICE

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John Oakes
Vice President, IT
RMS

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LEGAL ISSUES

DOJ Seeks More Data On Microsoft-Yahoo Deal

THE U.S. Department of Justice has asked Microsoft Corp. and Yahoo Inc. to hand over more information regarding their proposed search partnership.

Microsoft and Yahoo in July announced a deal under which Microsoft's new Bing search engine would run on multiple Yahoo sites, and Yahoo would handle sales of premium search advertising for both companies.

A Microsoft spokesman confirmed that the DOJ requested the data earlier this month. He noted that the inquiry was not a surprise and pointed out that the company said in July that it "anticipated a close review of the agreement, given its scope."

Microsoft still hopes the new business arrangement will go into effect early next year, the spokesman added. He declined to identify the information sought by the DOJ.

Meanwhile, the company last week confirmed that it and Yahoo have started "informal discussions" with European Commission regulators to determine whether the agreement needs to be subjected to a formal merger probe in Europe.

The EC declined to comment on the talks.

Antitrust litigator Matthew Cantor, a partner at Constantine Cannon LLP in New York, applauded the DOJ for investigating the proposed deal.

"This is not run-of-the-mill," he said. "[The DOJ] would only request additional information if there was some kind of presumption that the deal would cause antitrust effects."

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>
> MATTHEW CANTOR, CONSTANTINE CANNON LLP

Cantor pointed out that the partnership would leave only two major search offerings — Google and Bing.

Microsoft contends that the deal will improve competition in the search business.

— Sharon Gaudin, with Paul Meller of the IDG News Service

BETWEEN THE LINES

By John Klossner

PLEASE PRESENT YOUR LAPTOP FOR INSPECTION.
PLEASE PRESENT YOUR SERVER for INSPECTION.
PLEASE PRESENT YOUR CLOUD FOR INSPECTION.
DHS gets thorough

BENCHMARKS LAST WEEK

White House CIO Vivek Kundra unveiled a cloud computing service called Apps.gov, an online storefront where federal agencies can buy online applications and basic computing services.

EMC Corp. hired 30-year Intel Corp. veteran Pat Gelsinger as president and COO for the EMC information infrastructure product lines. Gelsinger held several posts at Intel, including CTO and co-general manager of the digital enterprise group.

50 YEARS AGO: Bank of America started using an electronic checking system developed at the Stanford Research Institute that read magnetic ink on checks.

Global Dispatches

Intel Calls on EC To Dismiss Ruling

BRUSSELS – Intel Corp. has asked Europe's second-highest court to annul last May's antitrust ruling against the company, accusing the regulators of interpreting the law erroneously and of conducting sloppy analysis, according to details disclosed last week.

The European Commission fined Intel a record $1.45 billion in May after finding that the company had abused its dominant position in the European microprocessor market. The EC ordered Intel to stop offering rebates to PC manufacturers and retailers who agreed to use Intel chips or sell Intel-based products exclusively or nearly exclusively. The company was also required to stop paying PC makers to delay the launch of systems based on chips made by other vendors.

In its appeal to the Court of First Instance in Luxembourg, Intel contended that the EC had failed to prove that the company's actions blunted competition.

Paul Meller, *IDG News Service*

Tokyo Companies Merge Mobile Ops

TOKYO – NEC Corp., Casio Computer Co. and Hitachi Ltd. last week announced plans to merge their mobile phone businesses to reduce costs, boost technological expertise and expand market share.

The Tokyo-based companies said they expect the venture to be operating by next April.

The new entity, to be called NEC Casio Mobile Communications, will employ 2,200 people, and its headquarters will be in Kawasaki City, Japan, they said.

Dan Nystedt, *IDG News Service*

BRIEFLY NOTED

Asustek Computer Inc. last week introduced the Unlimited, or UL, family of thin, light laptop PCs. The Taipei-based company said the machines run on newly designed batteries that can operate for up to 12 hours, depending on configuration and usage. Pricing for the new line of computers ranges from $31,900 to $34,900 New Taiwan ($980 to $1,074 U.S.)

Dan Nystedt, *IDG News Service*

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LAST WEEK

White House CIO Vivek Kundra unveiled a cloud computing service called Apps.gov, an online storefront where federal agencies can buy online applications and basic computing services.

EMC Corp. hired 30-year Intel Corp. veteran Pat Gelsinger as president and COO for the EMC information infrastructure product lines. Gelsinger held several posts at Intel, including CTO and co-general manager of the digital enterprise group.

50 YEARS AGO: Bank of America started using an electronic checking system developed at the Stanford Research Institute that read magnetic ink on checks.

Global Dispatches

Intel Calls on EC To Dismiss Ruling

BRUSSELS – Intel Corp. has asked Europe's second-highest court to annul last May's antitrust ruling against the company, accusing the regulators of interpreting the law erroneously and of conducting sloppy analysis, according to details disclosed last week.

The European Commission fined Intel a record $1.45 billion in May after finding that the company had abused its dominant position in the European microprocessor market. The EC ordered Intel to stop offering rebates to PC manufacturers and retailers who agreed to use Intel chips or sell Intel-based products exclusively or nearly exclusively. The company was also required to stop paying PC makers to delay the launch of systems based on chips made by other vendors.

In its appeal to the Court of First Instance in Luxembourg, Intel contended that the EC had failed to prove that the company's actions blunted competition.
Paul Meller,
IDG News Service

Tokyo Companies Merge Mobile Ops

TOKYO – NEC Corp., Casio Computer Co. and Hitachi Ltd. last week announced plans to merge their mobile phone businesses to reduce costs, boost technological expertise and expand market share.

The Tokyo-based companies said they expect the venture to be operating by next April.

The new entity, to be called NEC Casio Mobile Communications, will employ 2,200 people, and its headquarters will be in Kawasaki City, Japan, they said.
Dan Nystedt,
IDG News Service

BRIEFLY NOTED

Asustek Computer Inc. last week introduced the Unlimited, or UL, family of thin, light laptop PCs. The Taipei-based company said the machines run on newly designed batteries that can operate for up to 12 hours, depending on configuration and usage. Pricing for the new line of computers ranges from $31,900 to $34,900 New Taiwan ($980 to $1,074 U.S.)
Dan Nystedt,
IDG News Service

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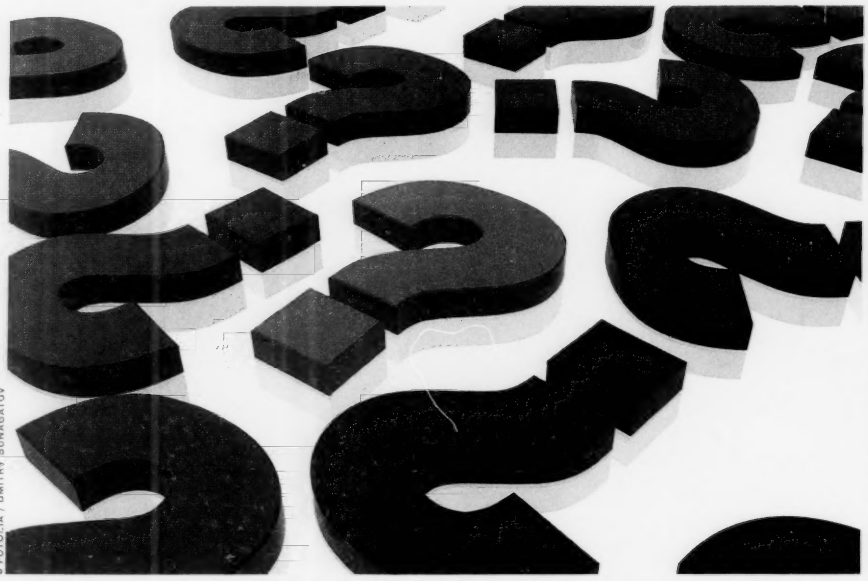

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Users Want Answers On Oracle-Sun Future

They say Oracle executives need to better explain their plans for the merged company.

By Patrick Thibodeau

WHEN Oracle Corp. CEO Larry Ellison hosted a webcast last week to unveil the next generation of his company's Exadata appliance, a label reading "Oracle-Sun" was prominently displayed on the high-end database and storage system.

Analysts said the arrival of the jointly built package shows that engineers at Oracle and Sun Microsystems Inc. have started working together in advance of the closing of Oracle's $7.4 billion acquisition of Sun, now expected in January.

But Ellison and webcast co-host John Fowler, executive vice president of Sun's systems business, only touted the joint engineering effort that created the Exadata Database Machine Version 2. They said nothing about the postmerger plans for the products of either company, keeping users mostly in the dark about the future of Oracle and Sun offerings.

Oracle had hoped the deal would be closed by now, but it was held up earlier this month when the European Commission opened an in-depth investigation in response to what it called "serious concerns" that Oracle's ownership of Sun's MySQL database could blunt competition in the database market.

Oracle did take an unusual step two weeks ago by running advertisements promising to spend more on Solaris software and UltraSparc hardware development than Sun does now. The ads came in the midst of aggressive efforts by Hewlett-Packard Co. and IBM to court Sun's customers.

The ads somewhat reassured Richard Newman, president of Reliant Security Inc., which uses Solaris-based systems to deliver data security products and services to retail industry customers. "We're crossing our fingers that what [Oracle] stated in print is in fact going to happen," he said.

> **"A lot of our clients are nervous. They want to know what's going to happen.**
> **IRENE GRIFFITH,** OWNER, PETROSYS SOLUTIONS INC.

He also acknowledged that he has concerns about Oracle's plans for Sun's open-source offerings. "In the open-source community, Oracle doesn't have a particularly friendly reputation," he said.

Nathan Brookwood, an analyst at Insight64 in Saratoga, Calif., called Oracle's ad "a very unequivocal statement of support for the Sun hardware."

However, Brookwood added that he doesn't expect the move to placate Sun's customers. "It's not time to stop biting your nails," he said.

Among the Sun customers most in need of quick answers are resellers, such as PetroSys Solutions Inc., which sells repackaged systems for the government and education markets. "A lot of our clients are nervous," said Irene Griffith, who owns PetroSys. "They want to know what's going to happen."

Sun's sales representatives have been mum on the subject. "They're not talking to us, they're not reaching out to us," Griffith said.

Richard Toeniskoetter, technology director at the W.A. Franke College of Business at Northern Arizona University in Flagstaff, said he wants to know Oracle's plans for Sun's Virtual Desktop Infrastructure software and its Sun Ray thin clients.

"We are already running a fairly mature VDI model, and we just want to see Oracle recognize that it's a viable platform," Toeniskoetter said, adding that NAU is also interested in Oracle's plans for MySQL. ■

Colleges Get Head Start On New 802.11n Standard

BRANDEIS UNIVERSITY

The Shapiro Campus Center at Brandeis University

The just-ratified wireless specs are already in heavy use at Brandeis and UC San Diego.

By Matt Hamblen

AT LEAST two years after many IT shops started using wireless access points and related gear based on a draft version of the latest Wi-Fi standard, 802.11n, the IEEE this month finally ratified the long-awaited specification.

The new standard, called WLAN Enhancements for Higher Throughput, adds support for video and other rich data streams and offers data rates of up to 600Mbit/sec. — more than 10 times faster than current wireless standards.

The Sept. 11 vote by the IEEE Standards Association came seven years after work on 802.11n began and almost a year after the standards body had first projected it would be ratified.

" 'N' is our future," said John Turner, director of networks and systems at Brandeis University in Waltham, Mass. He said the university now has about 110 access points (AP) from Aruba Networks Inc. that support both 802.11n and the earlier versions of the standard — 802.11a, 802.11b and 802.11g. The school still has some 800 APs supporting only the three older 802.11 iterations.

All renovations and new construction at Brandeis must now include 802.11n-based gear. The older access points in existing buildings will be upgraded to add support for 802.11n during a network refresh scheduled for 2011, Turner said.

The University of California, San Diego has already installed about 2,400 Cisco Systems 802.11n APs in nearly 150 buildings, said Jim Madden, a UCSD network architect. The 18-month project, completed this summer, cost several million dollars.

The Cisco products replaced APs from Avaya Inc. that support the older standards. The change was made to address the growing bandwidth needs of students, faculty and staff, Madden said.

"[The older specs] certainly wouldn't have given us the bandwidth we needed," Madden said, noting that the use of video and other data-rich academic applications is expected to mushroom in coming years.

Even as Turner and Madden strongly endorse the use of 802.11n at their schools, both are dubious that wired networks will ever be eliminated from their campuses — especially network backbones that sometimes run multiple 10 Gigabit Ethernet connections.

Turner said that while "wireless and mobility are the future of all edge technologies" and that the Brandeis network upgrade will eliminate wired ports in dorms, he still expects the school to continue using a wired backbone "for many reasons, including resiliency, security and throughput."

Madden noted that 802.11n networks may not be able to fully satisfy users as bandwidth requirements explode. "As a shared medium, it will be a long time before 'N' can satisfy the bandwidth requirements of very high-end computing for large numbers of people," he said.

Madden said his projections include the need to have 300 users simultaneously make 100Mbit/sec. transactions. "It's hard to accommodate that," he said. ■

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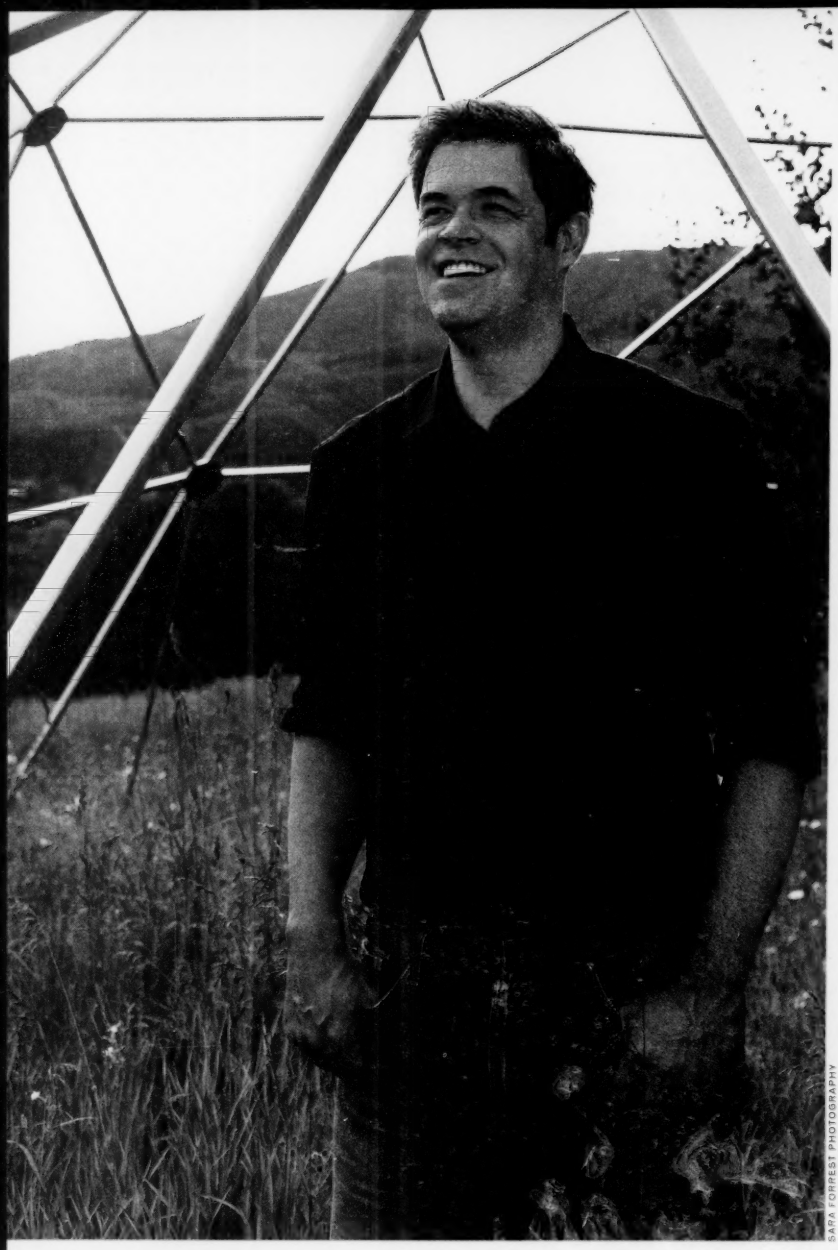


SARA FORREST PHOTOGRAPHY

■ THE GRILL

Adam Bosworth

The **former Google exec** turns his attention back to **health care,** helping **consumers** master their own **medical data.**

Dossier

Name: Adam Bosworth

Title: CEO and co-founder

Organization: Keas Inc.

Most interesting technology: Machine learning

Philosophy in a nutshell: "Really two: *Carpe diem* and KISS – keep it simple and stupid where possible; life is complicated enough."

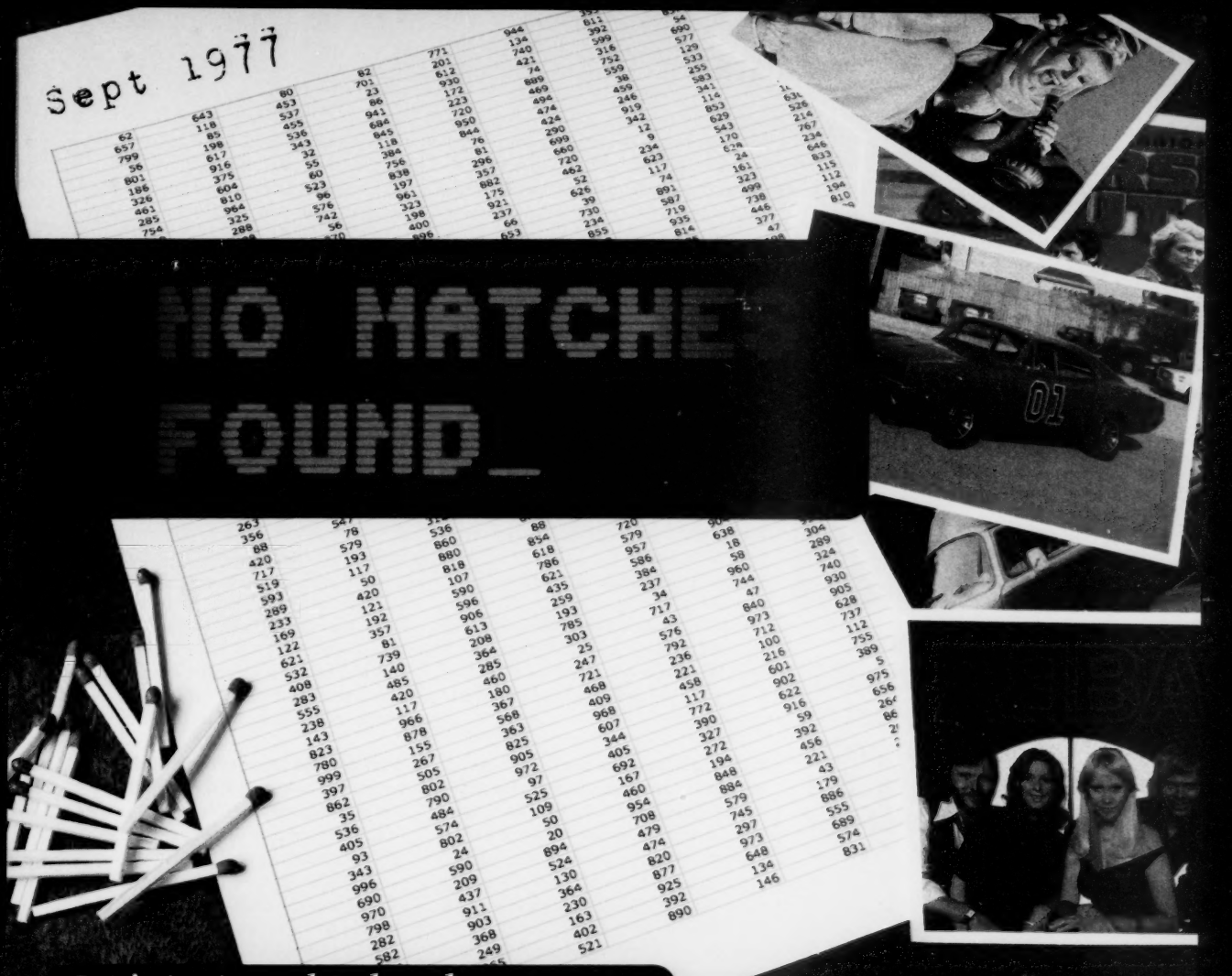
Three defining personality traits: "Lazy (I need downtime and work/life balance), passionate (what I do, I really care about or I don't do it), and simplistic (I look for simple solutions to hard problems)."

Favorite vices: "I don't think of what I do as vices, just living life to the full."

Adam Bosworth is asking you to take your health into your own hands (or at least into your computer). The former head of Google Health, Bosworth is now working on a new start-up, Keas Inc., which is dedicated to helping consumers take charge of their own health data. His work focuses on making individual health records easily accessible, thus preventing overtreatment and overspending through proper patient education. While attending the Aspen Health Forum this summer, he took a few minutes to explain the importance of public access to health data.

Let's talk a little bit about how you got to where you are today. I worked for Citicorp in the distant past, Borland building Quattro, Microsoft for 10 long years building what I now call Lego blocks for adults, BEA Systems for three years, Google, and three of my own start-ups. I decided about five years ago that I'd spend the next 25 trying to improve health care and help bring it into the 21st century. I went to Google with that in mind and got sidetracked for 18 months running and building what are generally called Google Apps today before getting to work on Google Health. Keas, my current company, is in some way the culmination of everything I've learned in

Continued on page 18



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“We know how to build good, fast, scalable on-demand software cheaply. But health care is still sold client/server.

Continued from page 16

computing, applied to how to improve health care.

What rights do we, the public, have with our health records, and why is the demand for online health technology increasing? I helped start the HealthDataRights.org site with some friends, and I believe passionately in it. The Internet is an incredible communication and computing device. It can deliver any information and communication to anyone, anywhere. And every industry takes advantage of this except health care. People are trying to get the personalized relevant information and communication they need — What meds should I be on? When can my doctor see me? — and are stymied. Once it is understood that we all have the right to our health data online to use as we see fit, we will see a rapid emergence of companies like Keas that help people take charge of their health.

Can you tell me a little bit about Keas? We give people a personalized and tailored understanding of their health data: How are they doing? What matters? And for those things that matter, are they [flagged in the system] in red, yellow or green? If not in the green, we give them personalized and tailored health plans and a support community to get into the green. We help people track their lab results — cholesterol, HDL, LDL and so on. We give them reminders that they need to stay on top of their health.

It is a simple idea, but hard to execute. What makes us somewhat unique is that any health and wellness experts, without needing to be programmers or hire IT, can author these plans. Instead of helping 100 people a year, they can help 100,000.

What are some of the benefits of having our health care records accessible at all times? Does it help cut costs, for example? Giving consumers tools for taking charge of their health will absolutely cut costs. We have a completely broken system today. It is a “sick care” system, not a health care system. Think of disease as a slope over time, where it takes years of bad behavior to get sick enough to actually get Type 2 diabetes or lung cancer or coronary disease. Once you are this sick, you cost a fortune to treat. Even more so in the U.S., where tests are frequently done redundantly, and expensive procedures are followed even though evidence suggests that diet and exercise would be far more effective. But if people have the early warning signs and the knowledge and support, and they take responsibility, then these diseases, which cause over 50% of our care costs, will drastically abate.

What are some mistakes that have been made, and how has the health care IT world learned from them? A canonical mistake in the IT world is to define standards without people trying to use them as they build them. In the end, such standards normally fail due to market imperatives. But in the health care market, imperatives don't work well because there are no rewards for doing it more cost-effectively. We have seen this in the huge HL7 health care standards, which are like using a supertanker to deliver milk to your house. Also, most health care software in the doctor's office is 20 years out of date. We know how to build good, fast, scalable on-demand software cheaply. But health care is still sold client/server.

There has been some talk that open source is the key to advancing 21st century health care reform. Do you find this to be true? It depends. I believe in the profit model. I worry about things that are free because it is so easy to fall into the tragedy of the commons. I think a lot of problems in health care stem from the fact that the consumer doesn't pay the doctor. If we did, I'm confident that health care would be far more user-friendly. So I think it depends on the circumstances.

What does the future of health and technology look like? Will everyone be e-prescribing and self-diagnosing online? I think everyone will work together with a team. Care will be continuous, not episodic. Computing power will ensure that the right people are alerted before problems become intractable, and the team plus the community will help to rally everyone on. E-prescribing will not always be online. Some routine escalations of medicines may be, but doctors will still use hands-on judgment before prescribing or changing medicines in many cases. Consumers will have tools to learn which issues may be the reason for their symptoms and with what likelihood — something doctors often don't know on a statistical basis. That, for example, would have saved my mother's life; [she] died from ovarian cancer. But doctors again will partner online with consumers to practice participatory medicine. I do think a lot of visits, like psychological ones, will harness the power of videoconferencing to cut down on unnecessary travel and deliver maximum flexibility.

— Interview by **Sara Forrest,** *a freelance photographer and writer in New York (studio@saraforrestphoto.com)*

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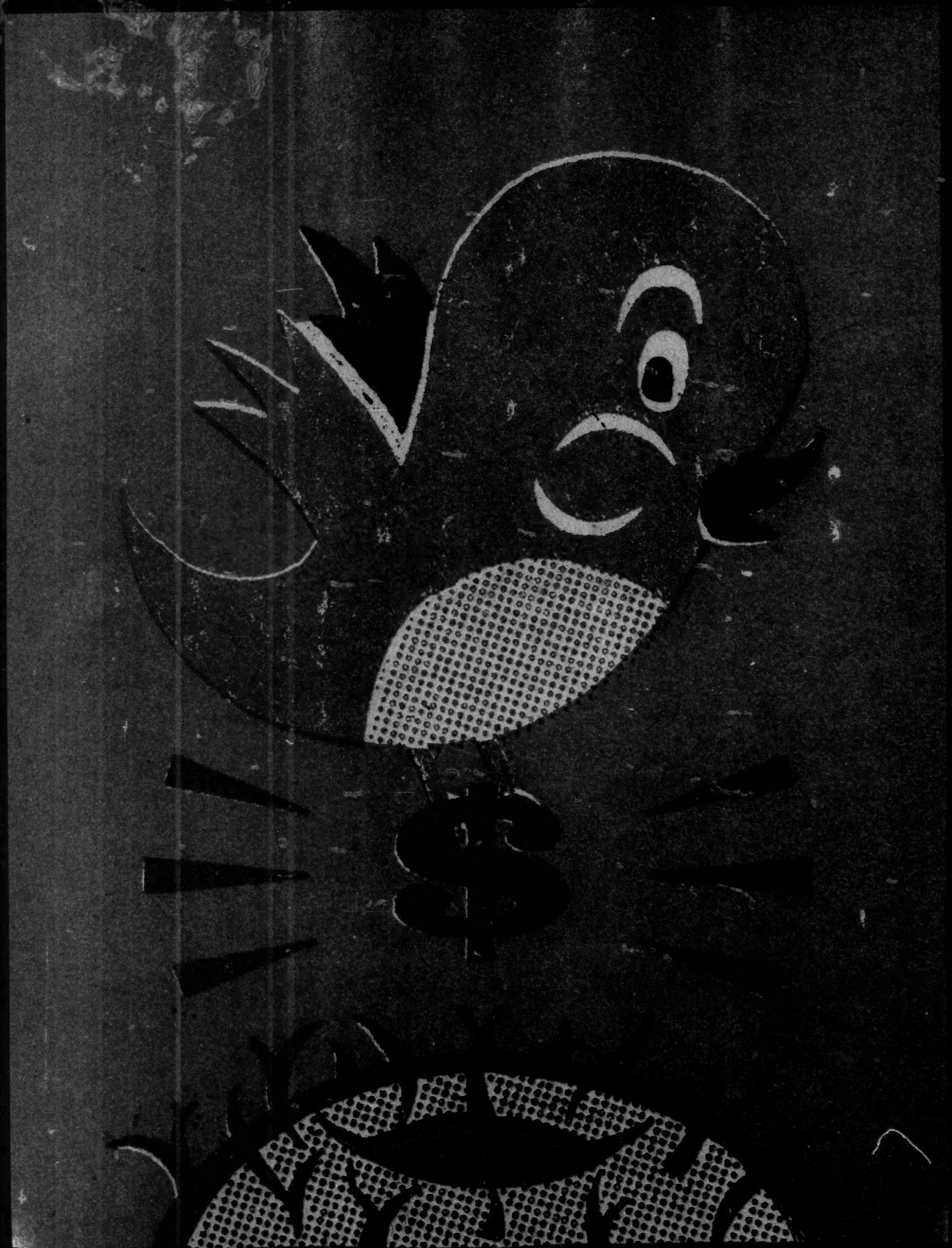

Cashing in on TWEETS

It isn't easy, but some companies are proving it's possible to calculate the ROI of marketing via social media. By Mary K. Pratt

TECH-SAVVY FANS OF THE GEORGIA AQUARIUM GOT A special deal this past spring: a big discount on ticket prices. ■ The aquarium offered 25% to 40% off admission prices from February through May to people who followed it on Twitter or signed on as Facebook or MySpace fans. ■ The promotion brought in $42,000 in sales, something the Atlanta aquarium could track through a URL it created and used specifically for the promotion, says Dave Santucci, vice president of marketing and communication.

Santucci and IT Vice President Beach Clark say the promotion also helped them calculate whether the aquarium's investment in social media is paying off, and by how much.

The attitude toward social media today is much like the "build it and they will come" approach that companies took to Web site development in the early days of the Internet. Over time, businesses learned how to measure the value of click-throughs, e-mail campaigns and other Web site functions, and today they can calculate the ROI of their online initiatives.

Now, as more companies adopt social media for business dealings, leading organizations are trying to assess the actual value of using these tools. They're finding that while social media technologies do have business benefits, calculating the hard numbers of ROI is a difficult yet necessary step as they try to decide what actions to take next.

"I've been a big proponent of being able to measure and using measurements to drive decisions. And we're making progress," Clark says.

Santucci says he and other executives at the five-year-old aquarium knew for several years that they wanted to invest resources in social media. He says a YouTube video helped prove the need. The clip, called "Dancing Otters," has attracted more than 900,000 viewers since it was posted two years ago. An aquarium visitor shot the video, but the clip doesn't mention the Georgia Aquarium by name.

Though Santucci recognizes the lost marketing opportunity there, he says the aquarium didn't have the time or staff to make an effective leap into social media until last summer, when three interns came in to tackle the job. One intern was hired to work on the project full time, and a public relations person became the manager of social media and new communications.

TECHNICAL SUPPORT

Clark says his IT team works on whatever development projects and IT infrastructure are required to support the initiative. Also, he sometimes works with an interactive agency to develop specialized applications, such as a mash-up between Google Earth and the photo-sharing site Flickr that shows where aquarium visitors are traveling from.

So far, the financial investment in social media has been small, Clark

GARY TAXALI

says. There is IT staff time involved, though, to ensure that the social media activities are integrated into the organization's Web site and to deliver support services, such as the special URL for the spring ticket promotion.

The minimal cash investment has helped justify the aquarium's efforts on this front so far, Clark and Santucci say. The cost to tweet about a new horseshoe crab exhibit, for example, is minimal — in the tens of dollars. A worker can use an aquarium-issued smartphone to snap a photo, upload it and send out the brief message.

But the question then becomes, how much business is generated by a tweet like that? A special URL can be added to such messages to track the number of patrons who visit shortly after seeing the tweet. But it's harder to measure the degree to which the buzz inspired by that message and similar activities influences things like future sales of tickets and memberships.

Looking ahead, Clark and Santucci say there has to be a clear ROI to justify spending more time and money on social media.

FROM ZERO TO 'INFINITE'

Of course, that special promotion did yield a concrete metric. The staff spent a minimal amount of resources to send out information through Facebook, MySpace and Twitter, but their efforts brought in $42,000 — or 2,500 admission tickets. (Clark and Santucci both say that driving ticket sales is the big goal with these efforts.)

That's a clear and trackable ROI, Clark says. "We had zero sales through social media last year, so it's infinite growth," Santucci says.

However, he and Clark acknowledge that it's harder to count how many of those visitors would have come without the promotion and how many came because they conveniently received the discount. The tools to assess that part of the ROI equation aren't in place yet.

Clark says he's exploring what tools to use to track the number of people who post and share videos or pictures from the aquarium on social media sites, as well as track how many people chat about the aquarium online. What's lacking, he says, are tools to calculate how those activities translate into ticket sales.

> **"A lot of people end up measuring activity, but getting from that to value is the hard part.**
>
> JEFFREY MANN, ANALYST, GARTNER INC.

Jeffrey Mann, an analyst at Gartner Inc., says businesses might use social media for communicating internally, for communicating with the public or both.

Leading-edge companies using social media to reach the public are starting to calculate ROI based on lead generation and sales completed, he says.

Companies using it for in-house work are trying to calculate ROI, too. Mann says they often measure activity, such as the number of log-ins or the number of posted documents and comments. But he notes that activity calculations don't necessarily translate into a hard-core ROI figure or measure the business value generated.

"A lot of people end up measuring activity, but getting from that to value is the hard part. It's very hard to measure value," he adds. "So there's still a bit of a gap."

He says companies need to calculate how much time and money they spent on certain tasks — i.e., making a decision or designing a new logo — before the introduction of social media and compare that with how much they spend now.

Mann says he expects more companies will have to calculate these costs as they invest more in social media. Having an employee update Twitter every now and then might involve minimal investment, but as a business's IT department starts to build its own applications or integrate off-the-shelf applications with the company's CRM system, the costs — and the need for hard ROI calculations — will go up.

Litle & Co. in Lowell, Mass., is now at that point.

The company, a payment-processing center for other businesses, has been using social media sites for two years, says John Stevens, director of corporate content and communications. Those tools include a wiki designed for its own developers, and Twitter and LinkedIn for connecting with customers.

"We have begun to look very hard at what the ROI is, what is that value, and how do we actually quantify it," Stevens says.

The company has had leads on new clients come in through Twitter and LinkedIn, and employees have been able to provide real-time customer service through them too, he says.

"In the softer world, they've proven themselves out," Stevens says. He also says the company has seen "six-figure revenue come in because of the connections made through social media."

But Litle is now trying to gauge the benefits of communicating with customers through social media channels rather than via e-mail or phone calls.

"If you're using the available mainstream social media that you don't have to serve, host or secure, then you're talking about a number of different value drivers," Stevens explains. "And when you look at the value of conversations with people, then you can ask whether you can spend less time in a 140-character tweet versus a 15-minute conversation on the phone. So we're beginning to measure that: Is it a less costly service channel than phone or e-mail, and is it preferred?"

Getting firm ROI figures is key, Steven adds, because the company is deciding whether to continue using public sites such as Twitter or build proprietary systems that meet its own security standards for sensitive financial and corporate information.

Continued on page 26

Top Barriers

Many marketers say that measuring the ROI of social media campaigns is important, but 70% of respondents in a recent poll said their companies aren't doing a good job of it. They cited the following as the biggest barriers:

1	Lack of dedicated resources to do the measurement and analysis (30%)
2	Don't know what to measure (25%)
3	Social media isn't primarily about ROI (20%)
4	Lack of tools (14%)

SOURCE: MARKETINGPROFS.COM INFORMAL POLL OF 338 MARKETING PROFESSIONALS, JUNE 2009

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Do the Math

Reality Digital Inc., a San Francisco-based technology company that helps other businesses launch social media campaigns, is a big proponent of calculating ROI – for its own uses of social media as well as for customers'.

CEO Cynthia Francis says calculating return on investment starts with understanding what you want to accomplish: Do you want to promote internal collaboration? Establish real-time connections with customers? Generate and track sales leads?

Then, you have to figure out what tools will help you achieve that goal, she says.

"The idea that everyone should have Facebook and Twitter is not true. You have to think about what people and customers want. Maybe all you need is a blog with three people in your company blogging. Bigger companies might want to be in all the public environments," Francis says.

In addition to a Web site and e-mail newsletters, Reality Digital uses Twitter and Facebook to interact with existing and potential customers.

Here's how the company's numbers break down:

- Total investment for social media programs (including technology costs and PR agency hours): roughly $3,000 per month
- Total sales leads generated in April, May and June: 72
- Average sales leads per month: 24
- Average cost per sales lead: $125
- Lead conversion to sales opportunities: 11.1%
- Lead conversion to closed deals: 1.4%

"Given the typical size of our deals, the annual cost of our social media programs is covered by revenue from one closed deal (annual contract)," marketing manager Lawrence Mak wrote in an e-mail about the figures.

He adds: "Because we started our social media program only three months ago, I consider it to still be in ramp-up phase. I expect cost per lead and conversion metrics to improve as the program matures over the next three to six months."

– MARY K. PRATT

Continued from page 24

The ROI figures will help Litle determine whether it's worth building propriety systems, which Stevens estimates would cost well over $100,000 in hardware and software.

"But there's no elixir that tells us how to get our answer," he says.

Some companies that have built their own social media infrastructures are finding that the ROI is solid.

One of them is IBM, which set up its own versions of popular social media applications because it wanted to be able to authenticate users and ensure security, says Carol Sormilic, vice president of social media at IBM. The company's internal version of Wikipedia, called Bluepedia, is a global intranet encyclopedia of all things IBM that's co-authored by employees. Its in-house version of Twitter is called BlueTwit, and its internal version of Facebook is called Beehive.

The sites have a social component, with photo contests and the like running on them, but Sormilic says they have real business value, too. "It starts to make the organization much smaller. It flattens the organization. And we're exchanging ideas," she says.

IBM has calculated the ROI for its efforts, but it declines to release specific numbers. Sormilic notes that some of the returns from social media are soft benefits, such as the ability to promote a better exchange of information among a geographically dispersed workforce.

Sormilic says IBM's social media tools have also delivered work efficiencies that cut costs. She points to the time savings among IBM salespeople, who use the tools to gain real-time access to the technology content they need to close deals and to connect immediately with IBM experts to assist existing and would-be customers.

"We have found that these new collaborative tools have helped reduce non-value-added time," she says. "The results were very positive." ■

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

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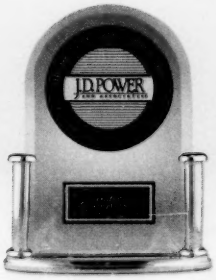

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Crossing the Skills Gap

There's a big difference between what colleges teach and what IT employers need.

By Julia King

THE NEWLY minted college grad comes to your door with a four-year computer science degree and a résumé full of technical acronyms. He knows about simulation and modeling, parallel computation and Internet software development. He's very familiar with Web 2.0 applications and social networking technologies. He has even built a Web site to showcase his talents. Surely, he's every employer's dream entry-level IT staffer, right?

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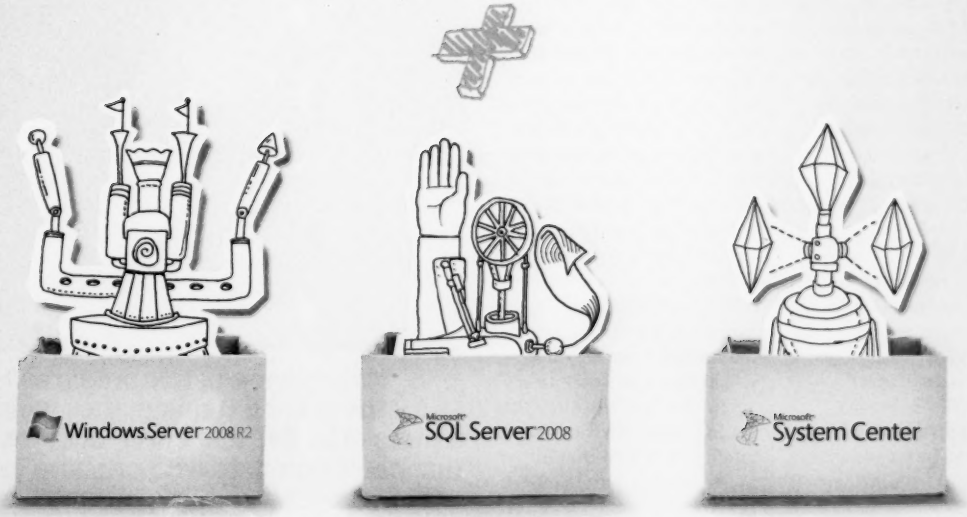
Microsoft



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Pathways To the Real World of IT

MORE internships for university students majoring in IT – and a formalized road map of skills and talents required to be successful in different IT jobs – would go a long way toward closing the gap between university life and the world of work, CIOs say.

HBO CIO Michael Gabriel, for one, is calling on IT executives to step up and contribute to the cause. Among other things, he suggests that IT executives let universities know what skills they're looking for and describe the corresponding jobs that use those skills.

"Academics haven't been in the workplace for a while, so they may not be in tune with what's really needed. You really need CIOs," he says.

Specifically, what's needed is a repository of information that explains various IT career paths and the skills and competencies needed to achieve success, Gabriel says. At HBO, Gabriel has put in place a similar career skills repository so IT staffers can see what they need to know in order to achieve their career goals with the company.

"For every level and every position, we defined the key skills and competencies we believe

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Not exactly, CIOs say. More often than not, there are significant gaps between what even the smartest and most tech-savvy graduates learned in school and what CIOs need from new members of their IT staffs.

What's more is that most companies have neither the time nor the money for on-the-job training. They'd prefer that universities incorporate more training for real-world IT roles into their curricula so that graduates are ready to start contributing their first day on the job.

"The problem is that universities don't train people to take jobs," says Michael Gabriel, CIO at Home Box Office in New York. "If they were better prepared to hit the ground running, they would be a more effective and lower-cost resource that could compete with offshore talent. They wouldn't hit potential constraints imposed by the time and effort required to get them to be productive."

Here's a rundown of some key gaps three CIOs from the insurance, financial services and entertainment industries see between what computer science graduates know and what they *need* to know to be truly productive and valuable to the business from Day One.

1 INADEQUATE GRIP ON BUSINESS REALITIES

Most of the college graduates that Cindy Warkentin talks to have what she considers "unrealistic expectations." "I had one young man tell me that unless I could offer him $75,000 or above, he's not interested. That's way above what's normal for a trainee," says the CIO at Maryland Automobile Insurance Fund in Annapolis.

Warkentin says recent grads also seem to think that they'll be able to approach work the same way they approached their studies when they were in school.

A full-time job "is a 9-to-5 commitment, and that really does seem to throw them a bit," she says. "They have a sense that they should be accorded opportunities at work to take long breaks, like the time in between classes."

As for IT skills, Warkentin gives university curricula high marks. "From a technical standpoint, the book learning and the experiences that technology students have is fairly sound. I don't see any huge gaps," she says. "But the university doesn't teach them what it's like to be in the workaday world."

This is exactly the kind of talk that gets Lew Temares of the University of Miami hopping mad.

"Yes, they're missing business experience, but they can't get that from a textbook," says Temares, who is CIO and dean emeritus of the university's school of engineering in Coral Gables, Fla. The best way students can get that experience is for companies to hire them as interns sometime after their sophomore year. But internship opportunities are down, Temares says. "The reason I hear is that companies don't have the people to train the interns. A lot of companies have cut summer internships, but it's a stupid place to cut. If you hire interns up-

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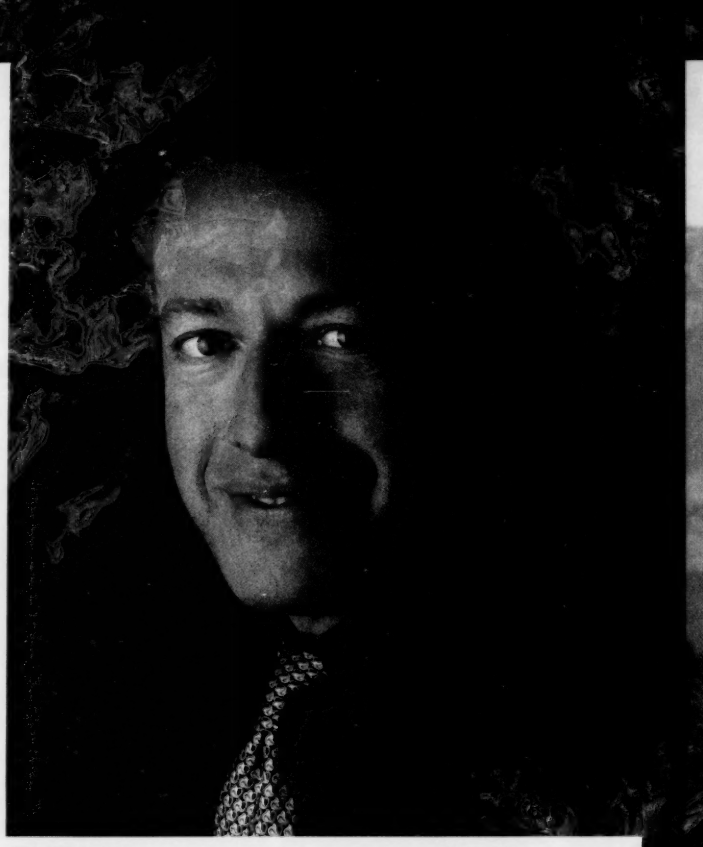
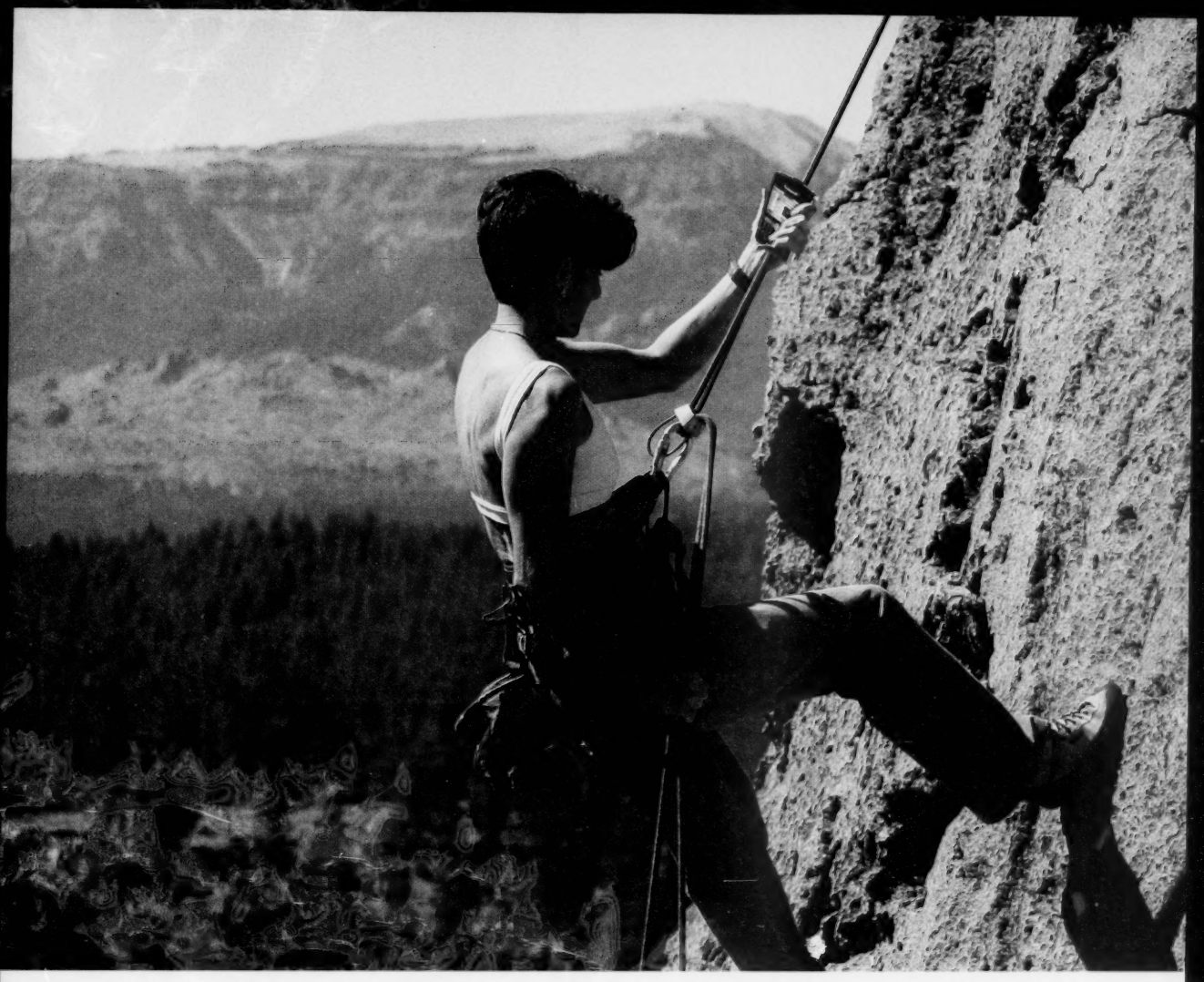


"If they were better prepared to hit the ground running, they would be a more effective and lower-cost resource that could compete with offshore talent.

MICHAEL GABRIEL, CIO, HOME BOX OFFICE



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are necessary for success in that job," Gabriel explains. "We then have training programs, books, classes, mentoring and projects that we put people on to develop those competencies."

CIO Cindy Warkentin says she's working to get more internships approved for the IT department at Maryland Automobile Insurance Fund.

"I think that's where the secret lies," she says. "I would love to get more people some real-world experience, to bring a technology student in and have them contribute to a project."

Warkentin says she too would like to see an "alliance" between business and academia so that students working toward technology degrees would be better prepared to enter the world of work.

One way CIOs can get involved is to sign up as speakers for on-campus career programs or to host on-campus meetings of IT professional associations, such as the Association of Information Technology Professionals or the Society for Information Management, and invite students to attend, says Dave Willmer, executive director of Robert Half Technology, an IT staffing firm in Menlo Park, Calif.

"Inevitably, the talk will turn to jobs and the skills that companies are looking for," he says.

– JULIA KING

Continued from page 30

front, you get the best people in the long run," he says.

Temares says he hires many students to work at the university during their sophomore and junior years. When they graduate, he's willing to offer them full-time jobs, because he knows that they're well versed in his IT organization's technology and culture.

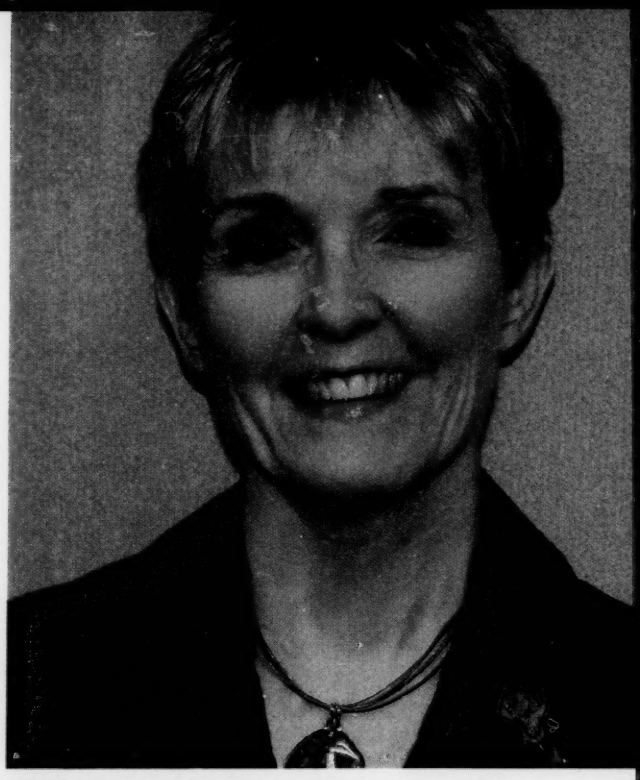
"If you don't take them when they're young and don't offer internships, you have no right to expect anything but book knowledge" when they show up on their first day of a job, he says.

To effectively bridge that skills gap, businesses and universities must form partnerships that bolster the currency of IT education and prepare IT graduates with the "right" business and technology skills, says Ravi Nath, an IT professor and director of the Creighton University College of Business. "Without such university-industry dialogue and partnerships, the disconnect between what industry wants and what graduates offer will remain."

Like Temares, Nath recommends that companies hire computer science students as interns.

"Clearly, no university can be expected to train graduates in every conceivable IT tool, programming language or technology platform," he says. "We have IT internship programs with several local firms where IT students work as interns for an extended period of time with the same business, beginning their junior year. This provides students with invaluable IT work experience, and upon graduation these students are ready to take on challenging IT positions."

Nath says these long-term internship opportunities are a win-win both for the employer and the student. Interns get IT work experience, and the businesses get an opportunity to assess the skills and dispositions of the interns as full-time employees.



"Most of the gaps I see are on the social, soft skills side.

CINDY WARKENTIN, CIO, MARYLAND AUTOMOBILE INSURANCE FUND

2 A NARROW WORLDVIEW

As a global real-estate brokerage and consulting firm, Cushman & Wakefield Inc. does business around the world. CIO Craig Cuyar needs and expects IT professionals to be aware of and knowledgeable about cultural differences.

That doesn't necessarily mean that staffers must have experience living or working in a foreign country, he says. "Not everyone can travel, but since we live and work in a global economy, we should expect undergraduate programs to prepare students with a fundamental understanding of the cultural differences, historical perspectives and common business practices employed by all the major countries within it."

Craig Cuyar

Ideally, Cuyar says, "there should be a course in global business practices and cultures. At the very least, there should be a few classes taught on this subject."

Cuyar says he has seen a seemingly small thing like time zone differences throw off new employees. "People need to really understand there's a 12-hour time difference between Hong Kong and the U.S. That's a conference call

at 9:30 p.m. versus 9:30 a.m. You can't schedule everything on U.S. time."

Cuyar says that to help new recruits get acquainted with various cultural norms and what it's like to work on multicultural teams, his strategy is to assign new hires to participate on committees that will enable them to develop those skills.

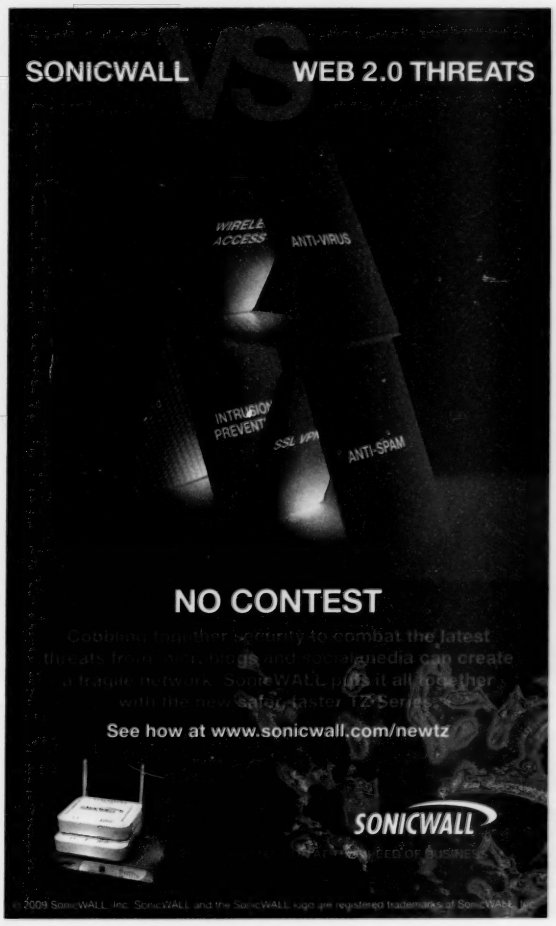
3 SOCIAL NETWORKING SKILLS BUT WOBBLY RELATIONAL SKILLS

Rare is the new college hire who lacks skills involving Facebook, texting or any other form of electronic communication. But face to face, many of these same people have difficulty reading interpersonal signals and communicating, especially in the increasingly multigenerational workplace, says Warkentin. "Most of the gaps I see are on the social, soft skills side," she says.

"The older generation tends to be more structured. They tend to have the expectation that anyone coming into the company will have the exact same experience that they did when they started their career," she says. "They expect a great respect for authority and a willingness to do as they're told." In contrast, "young people expect to receive respect for bringing new ideas."

New ideas are not at all a bad thing, the CIOs agree. Rather, what's needed, they say, is a better understanding of, and respect for, the various sets of values so that new employees are better at working on multigenerational teams.

"What I've seen is that people coming in don't have the necessary skills or understand the fundamentals required to build relationships with senior people," adds Cuyar. "A newly minted college grad is not going to be able to forge relationships with senior people via Facebook or LinkedIn."



4 LACK OF CAREER FOCUS

To CIOs, it seems as though college grads don't get any advice about how to match their talents and interests with specific IT jobs.

"From what I've seen, universities basically take more of a shotgun approach. They teach [computer science students] a little about a lot of things, but not enough to be effective in a corporate environment," says HBO's Gabriel.

For example, he would like to see colleges help students determine what their strengths are and then match those strengths and ongoing education to specific career roles within IT. "The idea is to build upon people's strengths," he says. "If someone is strong at math and they're analytical, there is a career in IT that leverages that, in business intelligence or data analytics."

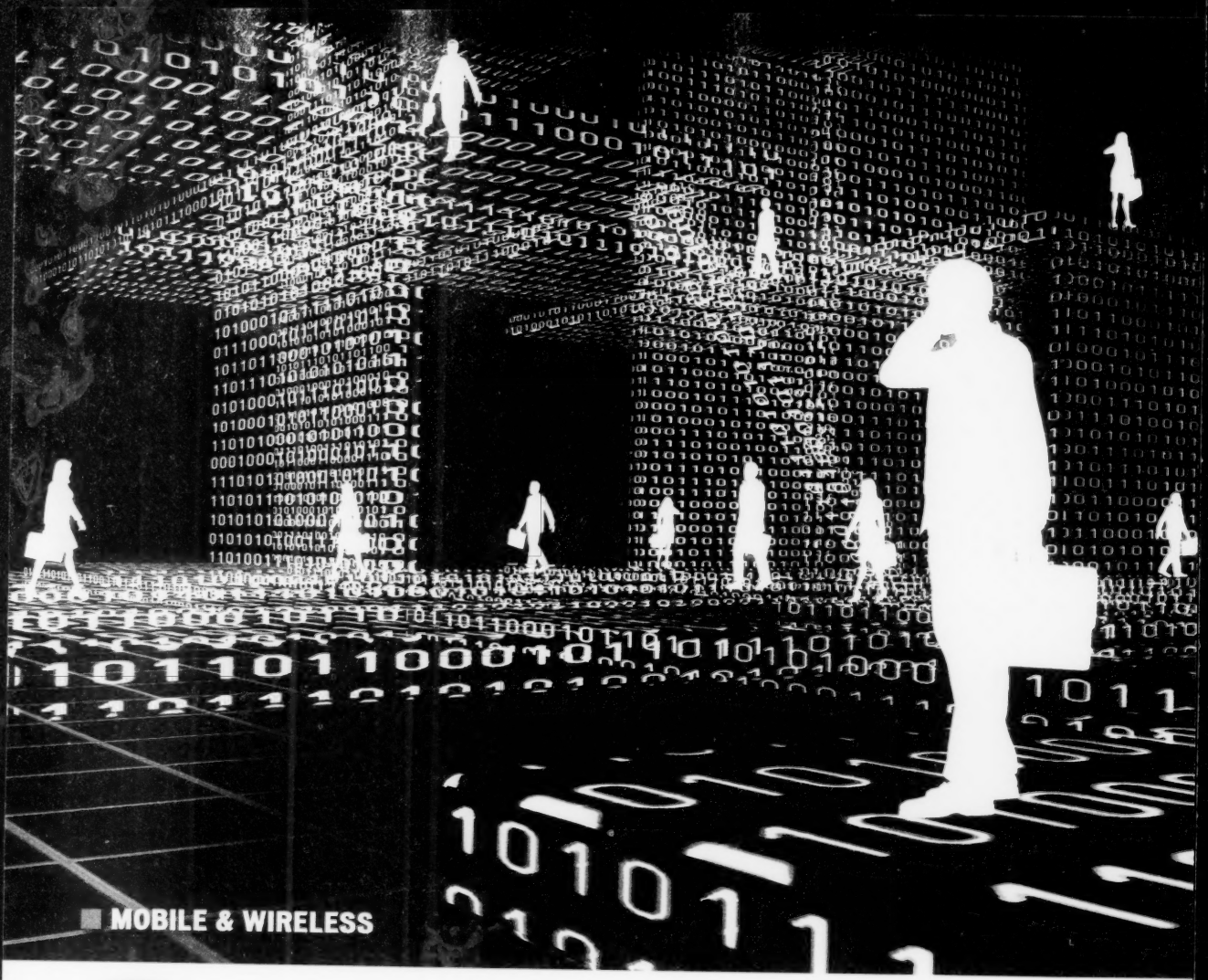
Gabriel suggests that university should teach IT skills that cut across all IT careers, and they should offer minor areas of study that focus on certain key skills needed for specific IT jobs.

"For example, if you like accounting or finances, you may want to work in financial systems," Gabriel says. "I don't know of any university with a specific focus on the things you need to know for financial systems — things like process flows, change management, chart of account conversions and project accounting. Universities could help students focus on certain skills and competencies. Students would still have a general IT degree, but it would be geared toward what really interests them."

As it is, Gabriel says, students seem to get little guidance from college career counselors or other university resources about determining where their skills really fit and what types of jobs they could get. ■

Without such university-industry dialogue and partnerships, the disconnect between what industry wants and what graduates offer will remain.

IT PROFESSOR, CREIGHTON UNIVERSITY COLLEGE OF BUSINESS



Context Matters

BY NOW, companies that have put business applications on smartphones or other handheld devices know of the competitive advantages they can gain. The more detailed and relevant the information at hand, the greater the opportunity an employee has to close a sale, improve delivery times — or even save a life.

With context-aware technology, employees can quickly find the supplies and colleagues they need. **By Beth Schultz**

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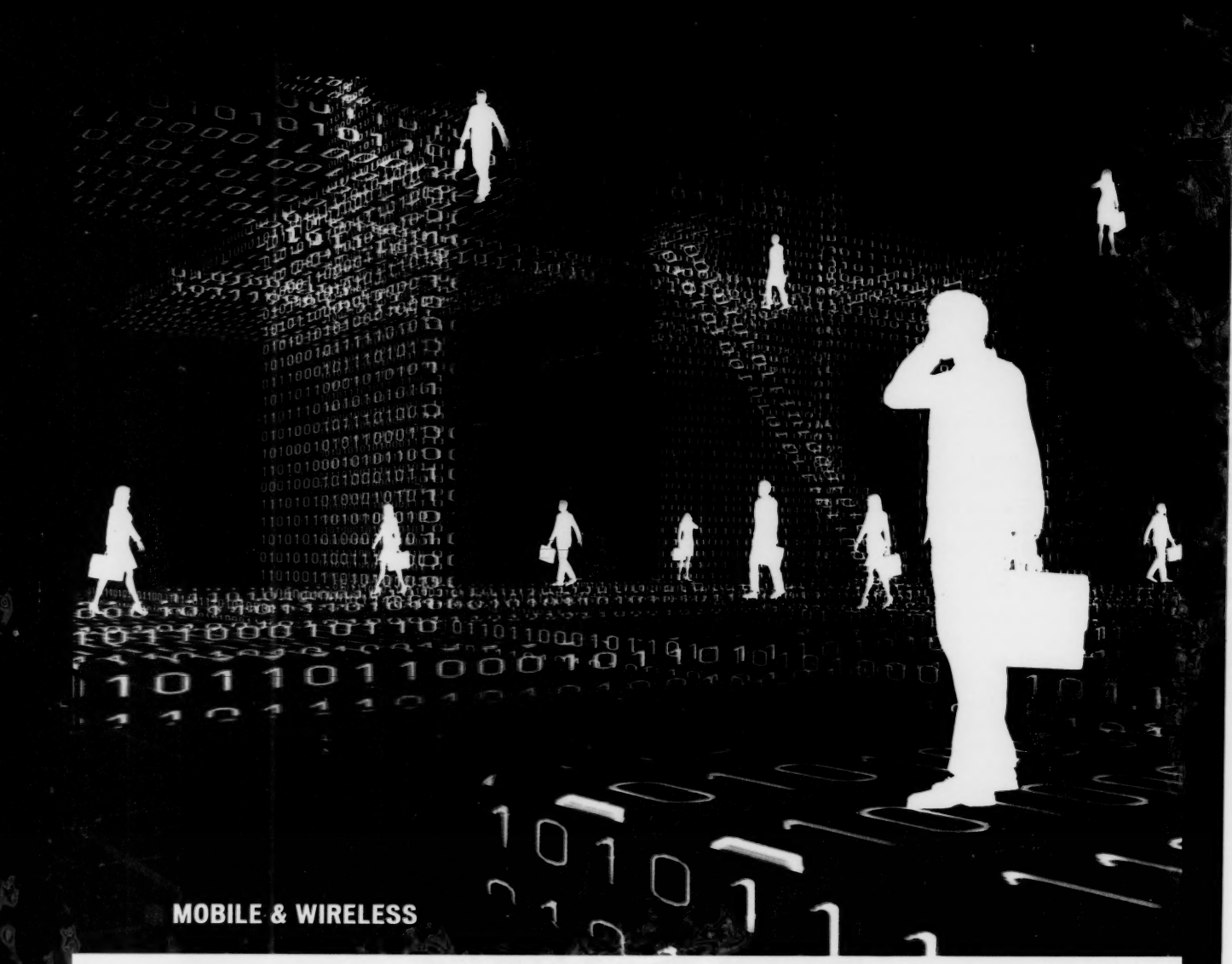

MOBILE & WIRELESS

Context Matters

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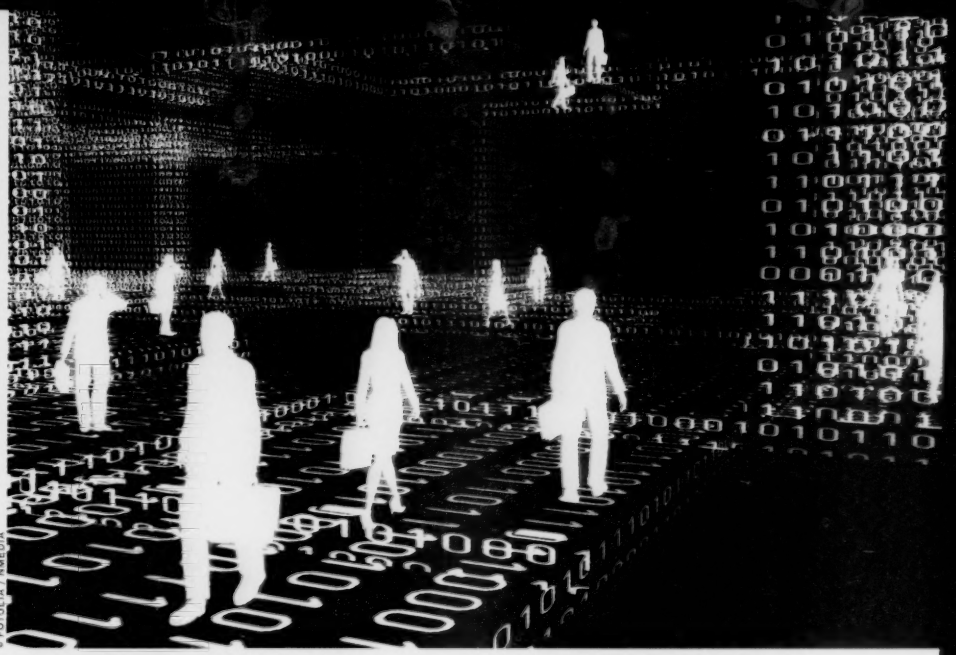

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> **"For me, it's a no-brainer that context will become by default a requirement for mobile solutions.**
>
> **SÉBASTIEN FABRE,** HEAD OF INNOVATION AND PLANNING, SITA

But these are early days for enterprise mobility, and most companies stop short of realizing its full potential. While they may be delivering customer relationship management information, field service updates and other critical data to mobile devices, they're probably not delivering as much relevant information to users as they could.

To make the data more relevant, context awareness is key. In a context-aware environment, wireless devices such as environmental sensors, radio frequency identification tags and smartphones send location, presence and other status information across the network. Specialized software captures, stores and analyzes the data, sending it back over the network to provide context at the end device as needed.

"Context-aware computing has one exciting future," says William Clark, a Gartner Inc. analyst. By 2013, more than half of Fortune 500 companies will have context-aware computing initiatives, he predicts, noting that mobility is a subset that accounts for 80% of the context-aware field.

Think of context in this way: "It is something that can help people or other systems make decisions faster," says Chris Thompson, senior director of mobility solutions at Cisco Systems Inc. "The vision for context awareness is to expose as much of this sensory information as possible to business applications so it can be correlated with existing business roles."

Context-aware technology is available from companies such as Agito Networks Inc., Appear Networks Inc. and Cisco.

"For me, it's a no-brainer that context will become by default a requirement for mobile solutions," says Sébastien Fabre, head of innovation and planning at SITA, an airline IT provider based in Geneva.

FINDING SUPPLIES

Some of the earliest context-aware mobility projects have involved the integration of location information into wireless applications. For example, Tallahassee Memorial HealthCare Inc. (TMH) in Florida has been using location services to track assets since 2006, says Jay Adams, the health care provider's IT enterprise architect.

As of this spring, TMH had tagged about 2,700 medical and wireless devices and updated the wireless infrastructure to make it possible to track supplies anywhere in its 800,000-square-foot hospital. Now information about an item's location is accurate to within four feet, Adams says. Using an asset-tracking application called MobileView 4 from AeroScout Inc. in Redwood City, Calif., nurses can locate equipment like IV pumps by drilling down to floor maps that were imported into the Cisco Mobility Services Engine (MSE) and then delivered to MobileView 4.

With context awareness, the hospital's asset-tracking initiative has gone from so-so to highly effective, says Adams. In the early days of asset tracking, nurses could determine whether a device was available but still needed to spend precious time rummaging through storage closets to find it. And all too often, the system would show a stash of infusion pumps on, say, the sixth floor when in reality they were two levels below, says Adams. He attributes that problem to the hospital's first-generation wireless network, which at the time wasn't capable of pinpointing locations.

"Because we were such early adopters, we and others didn't understand how critical the back-end wireless infrastructure is to asset tracking," Adams says.

For its initial location-aware wireless deployment, TMH had selected omnidirectional antennas, with the intent of covering multiple floors and lots of square footage from a single access point (AP). But by 2008, it was apparent that antenna coverage was a problem and that an overhaul was in order, Adams says.

TMH recently migrated its asset-tracking system to AeroScout's application running on top of a context-aware, Cisco-based wireless infrastructure. The infrastructure includes the year-old Cisco MSE, which hosts a Cisco Context-Aware Software module for capturing, storing and analyzing contextual information.

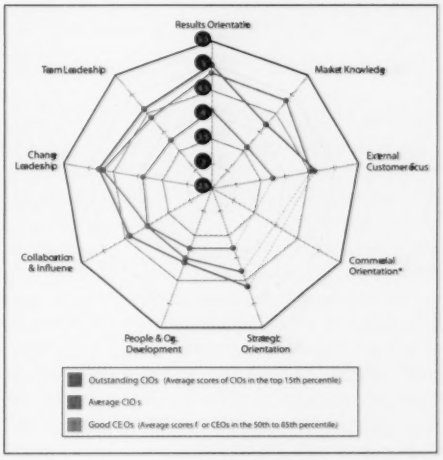
TMH made several adjustments in the new wireless infrastructure, which was designed with the help of Louisville Ky.-based systems integrator Radiant Networks LLC. For one thing, it switched from an omni-

Continued on page 38

Pathways: Turning Today's IT Professionals into Tomorrow's Business Leaders

Designed by CIO Executive Council members, Pathways is a premier leadership development program for those aggressively seeking the seat of the CIO. Pathways begins with a robust executive competencies assessment to identify individual strengths and opportunities for career growth.

The CIO Executive Council worked with talent appraisal firm Egon Zehnder International to create tools assessing key competency areas. Driven by the results of the assessment, participants pursue three distinct areas of development:



Egon Zehnder assessment tool

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Context on Ice

AT PITTSBURGH'S Mellon Arena, home of the Pittsburgh Penguins, the National Hockey League's 2009 Stanley Cup champions, some fans got a little something extra last season: live-action video streamed to their smartphones or other mobile devices.

Showing respect for their true-blue fans, the Penguins call this feature "Yinzcam" – "yinz" is Pittsburgh-ese for "y'all." The Yinzcam is the brainchild of Priya Narasimhan, an avid Penguins fan and an associate professor of electrical and computer engineering at Pittsburgh's own Carnegie Mellon University. Narasimhan co-directs the school's CyLab Mobility Research Center, where she and her students are studying how context affects the mobile experience.

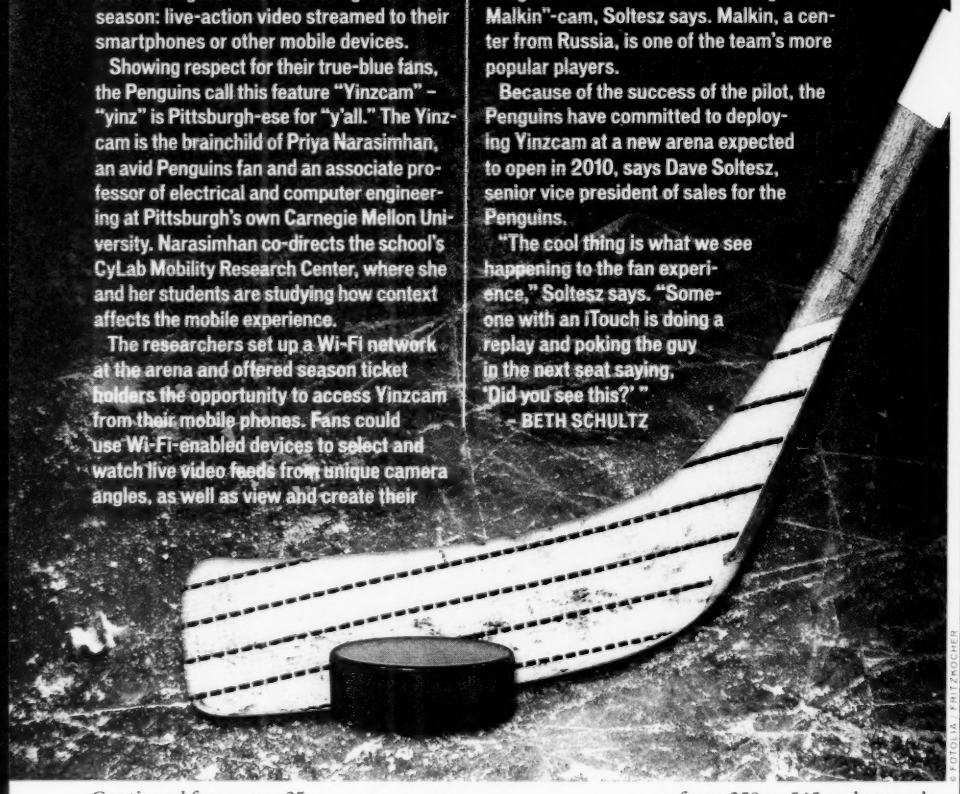
The researchers set up a Wi-Fi network at the arena and offered season ticket holders the opportunity to access Yinzcam from their mobile phones. Fans could use Wi-Fi-enabled devices to select and watch live video feeds from unique camera angles, as well as view and create their own instant replays and compile personalized content such as game-time information and player bios.

Particularly popular were the bench-cam, the goalie-cam and the "follow Evgeni Malkin"-cam, Soltesz says. Malkin, a center from Russia, is one of the team's more popular players.

Because of the success of the pilot, the Penguins have committed to deploying Yinzcam at a new arena expected to open in 2010, says Dave Soltesz, senior vice president of sales for the Penguins.

"The cool thing is what we see happening to the fan experience," Soltesz says. "Someone with an iTouch is doing a replay and poking the guy in the next seat saying, 'Did you see this?' "

– BETH SCHULTZ



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directional to a high-gain directional patch antenna. In doing so, it flattened out RF propagation, providing the ability to focus radio signal coverage on each floor and reduce interfloor interference. It also deployed newer APs, moving from the Cisco 1230 to the 1242, and decreased the AP power output to better define RF propagation, Adams says.

In addition, TMH increased the density of APs from 250 to 545 and moved the devices from the center to the perimeter of each floor. "So now every AP fires into the hospital rather than just providing an omnidirectional sphere," Adams explains. Because the new infrastructure tracks assets so accurately, nurses now typically have to search no more than two storage areas to find what they need.

Adding context awareness has improved patient care, increased productivity for the nursing staff and cut spending on medical devices, Adams says. The success of the application has prompted TMH to look for other ways to take advantage of context-aware technology, he adds.

For instance, the hospital is running a test to see if it can eliminate the need to manually record refrigeration temperatures, by tagging coolers and sending readings over the network to the MobileView software every 10 minutes. If temperatures drop below a prescribed point, appropriate personnel receive alerts on their mobile devices, Adams explains. Depending on the results of the pilot test, the hospital could extend its monitoring application to other systems, he says.

"Some of this personal privacy stuff just screams at you. We see a lot of this from local governments, which want to use location services to find out where their housing inspectors are sleeping.

MICHAEL FINNERAN, PRINCIPAL, DBRN ASSOCIATES INC.

THREE CHALLENGES

Of course, context awareness doesn't happen in a vacuum. Enterprises must be mindful of a number of challenges, one of the biggest being privacy, industry watchers say.

"Some of this personal privacy stuff just screams at you," says Michael Finneran, principal at dBrn Associates Inc., an independent wireless consulting firm in Hewlett Neck, N.Y. "We see a lot of this from local governments, which want to use location services to find out where their housing inspectors are sleeping."

But unions have balked at such uses, suggesting that supervisors don't need to know everybody's whereabouts all the time. A work-around would be to disable monitoring during the lunch hour and after 5 p.m., and to promote the idea that monitoring can help improve worker safety, Finneran suggests.

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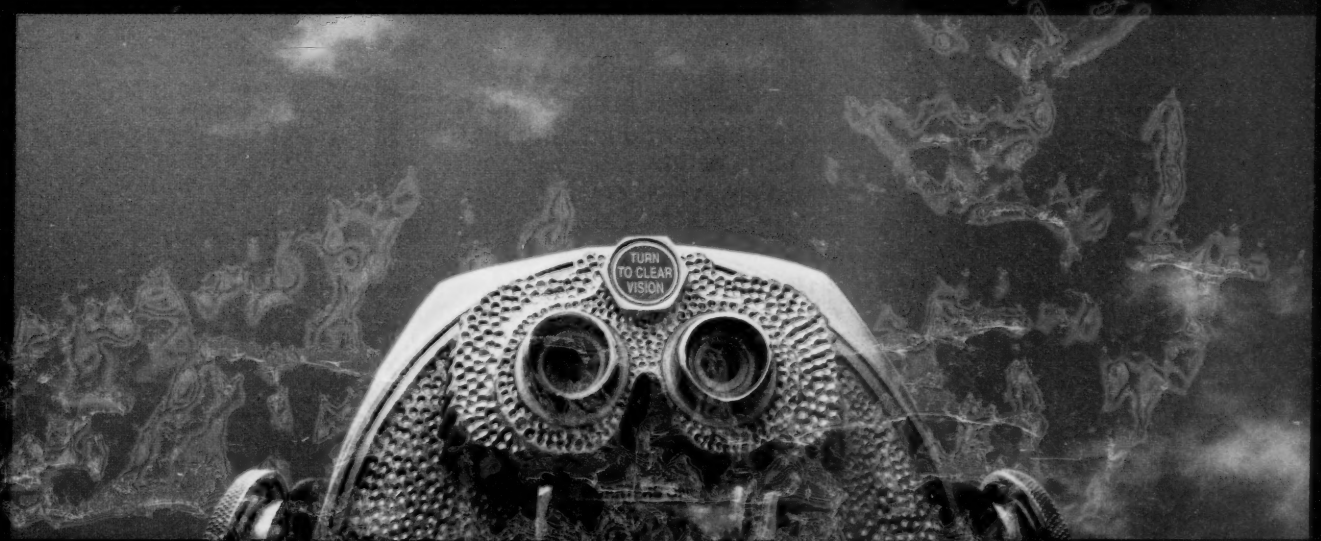

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ca Software

Continued from page 38

A second challenge is the federation of information, Gartner's Clark says. Adding context awareness to a system might require an ID from a user's carrier, a meeting time from a smartphone calendar or information from a social media platform. But ownership of the information is a big issue. Does the carrier own the ID, or does the user?

"Whoever owns that information will need to be compensated, either monetarily or in service," Clark says.

Last is the challenge of complexity. "It doesn't take a rocket scientist to figure out that the next level is correlating all of this context information, and there's a lot of opportunity to make the world more complex than simple," Clark says. "The trick will be to figure out how to keep it simple and in a way that's scalable, agile and quick."

AIRPORT OPERATIONS

These potential challenges aren't stopping some users. SITA is implementing a context-aware test platform that's based on the Appear Context Engine (ACE), a rules engine that determines where and when information should be available, and to whom. Kista, Sweden-based Appear Networks also offers push/provisioning, synchronization and device management modules, all made context-aware via the ACE.

At an airport, context awareness could come into play in many ways, says SITA's Fabre. In the case of a security breach, for example, the personnel closest to the incident would receive alerts, a map of the problem area and perhaps video from nearby surveillance cameras. Meanwhile, duty managers handling aircraft turnaround could more efficiently allocate tasks to baggage handlers, gate agents and maintenance crews while streamlining deployment of air bridges, fuel trucks and luggage ramps.

Fabre says one airline reported that implementing a context-aware mobility platform enabled it to adjust its staffing levels from one duty manager per aircraft to one manager for four or five planes. As a result, it projects double-digit cuts in aircraft maintenance and intervention time. It's also considering a hosted context-aware service from SITA at airports where it doesn't have a large enough presence to warrant building a context-aware mobility network of its own, Fabre says.

> **"The whole goal is taking a business process that's about to occur and making that as smooth as can be.**
> **WILLIAM CLARK,** ANALYST, GARTNER INC.

As enterprises grow into their mobility initiatives, context-aware technology will play an increasingly important role for them. Appear Networks has found context awareness to be particularly useful for blue-collar workers who use mobile devices to access real-time information in industries such as rail transport, emergency services, health care and air travel, says Xavier Aubrey, Appear's CEO.

A SALES PRESENCE

Presence is another logical starting point for context-aware mobility, especially as enterprises look at extending unified communications to mobile workers, says Clark.

In April, Agito Networks released a new version of its RoamAnywhere Mobility Router that features automatic location and context-enhanced presence functionality. The company's RoamAnywhere Presence system integrates with enterprise presence servers, including Microsoft Office Communications Server 2007. It lets mobile workers determine the presence status of any employee, including those at their desks, using the native Microsoft Communicator application, according to Agito.

"As you mobilize applications, you can't just shrink-wrap them and throw them on a phone; you've got to add context," says Christian Gilby, product marketing director at Santa Clara, Calif.-based Agito.

At Anthony Marano Co., a large, Chicago-based distributor of produce, enterprise mobility is all about being able to support voice calls in or out of the company's distribution center seamlessly as users move from Wi-Fi to cell coverage. The salespeople, who barter with suppliers and negotiate with customers on which fruits and vegetables they'll buy or sell and at what prices, live and die by the phone, says Chris Nowak, chief technology officer at Anthony Marano.

They also rely heavily on the call transfer feature, which enables them to forward customers from one sales rep to another depending on what type of produce the customer needs that day. Now, with the "cool new context-aware component," salespeople no longer have to blindly transfer those calls from their cell phones, Nowak says.

Using Agito client software running on their phones, salespeople can set up buddy lists. With the presence feature, they can see who's already on a call and who's available. They can also tell if that contact is in the building, in transit or working at home but hooked into the building's Wi-Fi network using Agito's Secure Remote Voice feature.

"Our salespeople have to make decisions quickly because they're dealing with fresh produce, and now they're better able to judge what to do with a call," Nowak says.

Presence comes in handy beyond voice applications, too. For example, Clark describes a health care scenario in which presence could help doctors make a diagnosis and begin treatment sooner. Say that while conducting tests, a radiologist determines that a patient has an anomaly that other team members need to know about right away. Using a presence-enabled buddy list application, he can see that three of the four doctors working on the case are tied up. Location information shows him the closest workstation to the one available doctor, so he can transmit a report to that machine and send an instant message alerting his colleague to take a look.

"The whole goal," says Clark, "is taking a business process that's about to occur and making that as smooth as can be." ■

Schultz *is a freelance technology writer in Chicago. Contact her at bschultz5824@gmail.com.*

Security Left Out of Another Decision

Replacing the printers with machines that can do **a whole lot more** must have seemed like a **no-brainer.** In reality, **not quite.**

DO YOU KNOW what gets old really fast for a security manager? It's being told that some decision has been made, that it's too late to modify it, that no one thought input from the security manager was needed, and that there's no budget to deal with the concerns he's raising at the eleventh hour. All of this has just happened to me — again.

This time, the problem is MFDs — multifunction devices that look like photocopiers on steroids. I found out that we had signed a contract to replace all of our printers with MFDs when workers showed up to haul away all our laser printers and then started wheeling in these new monstrosities.

I thought our old printers were fine, but apparently we can save a lot of money by using these new "smart" devices that can call for help when they run out of paper, need toner or get jammed. They are all network-connected and can print, scan, copy, fax, e-mail and do just about everything except the dishes. Sounds cool, right?

The problem is that they aren't really printers. They are network-connected computers with attached peripherals to perform numerous functions. I talked with the vendor and found out that these MFDs actually run Windows — and a very old version at that. Suddenly, we've introduced a bunch of new Windows machines to our network. You might recall that I've expended significant effort this past year to get a handle on Windows patch management. These new devices change the equation.

I met with the project manager to learn more about what's going on and determine how to get some security controls and practices into the work plan. She wasn't very pleased to see me. "These are just printers," she told me. "Why do we need to worry about security?"

Now, there's a question that'll get you on my good side. In response, I switched to education mode. I explained how the "brain" of these devices is really a Windows computer, and therefore we would want to harden them according to our standards and find a way to update their underlying software every month, as well as lock them down. This was not a welcome revelation. "We don't have budget for that, nor do we have the time," she told me.

■ These devices are hulking security exposures.

DEFINE 'TEMPORARY'

The MFDs were all rolled out within two days, and now they are hulking security exposures on our network, just waiting for a worm or virus to come along. But there are other concerns. Here's the most worrisome one: Any document that is scanned, printed or e-mailed on an MFD will be stored "temporarily" on the machine's internal hard drive. I put the word *temporarily* in quotes because those files will stick around until the system deletes them to reclaim space. Worse, should a machine fail, our vendor will come out and take it away and replace it — and who knows where those "temporary" document files will end up? Oh, and that replacement MFD will have to be hardened, assuming we ever manage to do that with the ones that just arrived.

I have to figure out how to lock these things down, and how to keep them updated. If I had been in the loop before the contract was signed, I could have argued for at least signing up for quarterly updates via CD. That would have added expense, it's true, but contracts shouldn't be signed on the basis of saving money — especially when no real effort has been made to find out about all of the costs that will be involved.

Ironically, my company has a pretty good process for reviewing the security of new technologies. But for that process to work, people have to recognize that certain devices we buy *are* new technologies. When they think of them as appliances, the security element gets kicked to the gutter. ■

This week's journal is written by a real security manager, **"J.F. Rice,"** *whose name and employer have been disguised for obvious reasons. Contact him at jf.rice@engineer.com.*

Trouble Ticket

AT ISSUE: Company printers have been replaced by multifunction devices that have brains – internal Windows computers.

ACTION PLAN: Find a way to get these new computers updated regularly, for starters.

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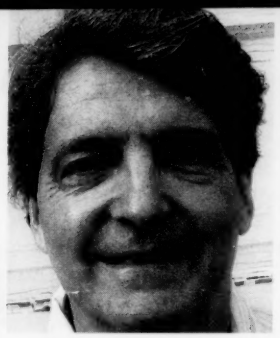
■ OPINION

Preston Gralla

Google vs. Microsoft: It's a Matter of Trust



FOR YEARS, Microsoft had no competition when it came to productivity suites. The vast majority of people and enterprises didn't have to give suites any thought at all. They just chose Microsoft Office.

With more businesses getting used to the idea of their apps and data living in the cloud, though, that's starting to change. Oh, Office is still dominant. But the Google Docs Web-based office suite is starting to gain traction, and not just among small businesses, but where the big boys and girls roam as well.

Google claims in its official blog that more than 1.75 million businesses, schools and other organizations, including Motorola, now use Google Docs. The company also claims that 3,000 organizations sign up for Google Docs every day.

In the education world, the company says, Google Docs has made significant inroads. It claims that more than 5 million students at thousands of universities in more than 145 countries are now using Google Docs, a 400% increase over last year.

As a way to drive home the point that Google Docs is ready for the enterprise, Google is renting billboard space in Boston, Chicago, New York and San Francisco to explain why enterprises should use the suite.

Microsoft isn't sitting still, of course. The next version of Office, Microsoft Office 2010, will include Web-based access to popular applications such as Word, Excel and PowerPoint, as a way to compete with Google Docs. Those Web-based versions, though, are not likely to be as robust as Google Apps. Google, for its part, has extended Google Docs to the desktop, adding some client features. And that, in turn, is not as robust as the client version of Microsoft Office.

But over the next several years, you can expect Google Docs and Microsoft Office to resemble each other more and more. Microsoft Office will gain cloud-based storage and other Web-based features, and Google Docs will include more powerful client-based components. Still, it's likely that Microsoft Office will for the foreseeable future be primarily client-based, and Google Docs primarily Web-based.

■ You can expect Google Docs and Microsoft Office to resemble each other more and more.

Where does that leave small businesses, medium-size businesses and large enterprises? Which should they use — Google Docs or Microsoft Office? Ultimately, it will come down to trust, and that's not just trust in a particular company, but trust in the company's particular technology approach, be it cloud- or client-based.

The worldwide outage of Gmail for 100 minutes earlier this month should give pause to those considering moving full time to Google Docs. As I wrote in my blog, the Gmail outage had Microsoft laughing all the way to the bank.

Imagine if you ran a company and that outage brought down all of the word processing, spreadsheet and presentation software in your business. That could be disastrous.

For now, at least, client-based suites are more trustworthy than Web-based ones. In addition, Microsoft has years of experience deploying and supporting Office, including automated deployment and management tools. Those are two good reasons to go with Microsoft.

Of course, the decision also depends on price, and on a company's size and requirements. If I were starting a small business today, for example, I would go with Google Docs. Not only is licensing less expensive than it is with Microsoft Office, but with Google Docs you can operate a business without an infrastructure, or even an IT staff. All you need is Web access. So the cost savings go well beyond licensing fees and would overshadow occasional outages.

Large enterprises, with their large investments in infrastructure, technology, expertise and staff, will still want to go with the tried-and-true. That's today, though. If the cloud becomes more reliable and Google develops enterprise-level support, the decision could become much tougher. ■

Preston Gralla *is a contributing editor for* Computerworld.com *and the author of more than 35 books, including* How the Internet Works *(Que, 2006).*

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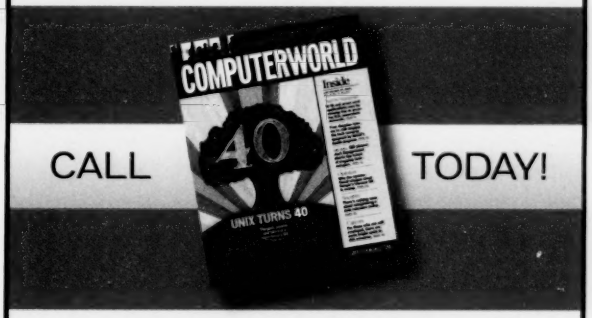

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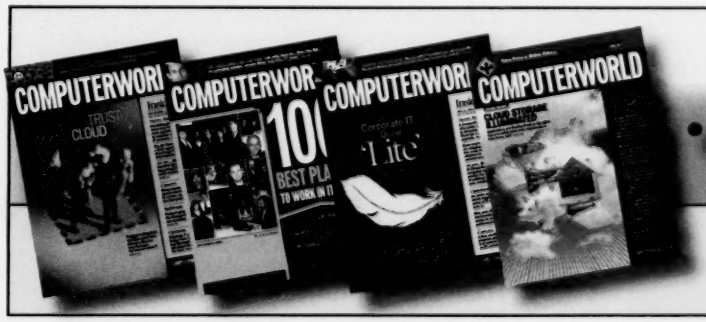

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Career Watch

The Valley Still Rules

When it comes to the breadth and scope of economic activity that it creates through technological innovation, Silicon Valley remains the gold standard among North American metropolitan areas.

The Milken Institute report that includes the rankings and scores listed here offers a sense of the Valley's dominance of the high-tech industry. Although Silicon Valley's share of total North American high-tech wages (5.69%) isn't eye-popping, you can't help but be impressed by some other figures: share of North American wages for computer and peripheral equipment manufacturing (28.43%) and for semiconductor and other electronic component manufacturing (21.48%), and total high-tech employment (244,040). That figure for total high-tech employment is surpassed by those of three other U.S. metropolitan areas (New York, Los Angeles and Washington), but they all have much larger populations. For perspective, keep in mind that the San Jose metropolitan area's total population was estimated by the U.S. Census Bureau to be just 1.8 million in 2008.

Speaking of the Census Bureau, its definitions for metro areas were used in this list. It's worth noting that Cambridge-Newton-Framingham, Mass., is only a portion of the larger Boston metro area and does not include Boston itself.

SOURCE: "NORTH AMERICA'S HIGH-TECH ECONOMY: THE GEOGRAPHY OF KNOWLEDGE-BASED INDUSTRIES," A MILKEN INSTITUTE RESEARCH REPORT, JUNE 2009

2007 Rank	2003 Rank	Metro Area	Total High-Tech Score
1	1	San Jose-Sunnyvale-Santa Clara, Calif.	100.0
2	3	Seattle-Bellevue-Everett, Wash.	46.4
3	2	Cambridge-Newton-Framingham, Mass.	45.2
4	5	Washington-Arlington-Alexandria, D.C.-Va.-Md.-W.Va.	41.8
5	4	Los Angeles-Long Beach-Glendale, Calif.	40.2
6	6	Dallas-Plano-Irving, Texas	21.8
7	7	San Diego-Carlsbad-San Marcos, Calif.	19.3
8	11	Santa Ana-Anaheim-Irvine, Calif.	17.7
9	9	New York-White Plains-Wayne, N.Y.-N.J.	16.8
10	8	San Francisco-San Mateo-Redwood City, Calif.	16.1

■ Q&A

Mark F. Weinstein

The author of **Habitually Great: Master Your Habits, Own Your Destiny** talks about the ways our bad work habits limit us.

PAGE COMPILED BY JAMIE ECKLE.

What are some of the bad work habits that can hold people back in tough times? There are many, and in these challenging times, they are often exacerbated. Right now, people and organizations are spending too much time feeling distressed – about their careers, the economy, their leadership, everything. The distress habit perpetuates a negative focus that preempts critical thinking or actions that focus on a brighter future. It leads executives to make emotional, impulsive decisions. Making hasty cutbacks in IT infrastructure for short-term savings right now is one example; such cuts may perpetuate the decline of a company that would otherwise have been poised to emerge as a leader in the recovery.

How does one go about breaking bad work habits? Any time you feel negative – when you are being reactive, triggered, fearful, manipulative or controlling – a limiting habit is vying for control. Breaking bad habits requires patience and cognitive awareness. As my book makes clear, there is no 30-second magic bullet to breaking habits. You must be determined, patient and intentional.

How often have you seen your New Year's resolutions wither on the vine? New Year's resolutions are born from inspiration, not discipline. Their aim is virtuous: to change, break or create a habit. The pathway to their fulfillment runs straight into the walls of your limiting habits, in spite of your inspired in-the-moment commitment and clarity of intent.

Here's why: Inspiration does not lead to sustained action. But discipline leads to inspiration. Think back to a time or a success that has felt really good. You were inspired! But your discipline led to your inspiration, and that is the beauty of the equation. The first step in breaking a bad habit is to identify the actions you want to take and then, with your discipline habit, schedule the actions and follow through; no distractions allowed!

What is the single best good habit to develop if one wants a more fulfilling career? The teamwork habit is the key to happiness and fulfillment. Every day, you participate in teams, in your personal relationships and with co-workers, vendors, customers and staff. Teamwork catapults your aspirations and accelerates the achievements and joyful circumstances you desire. The foundation of teamwork is trust, starting with trusting that people you know are capable, smart, effective human beings, just like you. Recognize the strengths of others, and acknowledge and ask for assistance in the areas where you are uncertain or weak, as well as the areas where you can just use some help. Build great teams and you will climb the highest peaks, individually and with your teammates.

– JAMIE ECKLE

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Shark Tank

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Disaster Management

This government agency archives digital material for other agencies, and it's getting a big upgrade of its servers and storage to handle all the data that's coming in. But a senior manager notices that it's been only two years since the server room's power and cooling were beefed up, so he decides another round of pricey improvements isn't necessary. Data center pilot fish and his boss try to explain about power usage and heat, but the manager doesn't listen. The new servers and storage are powered up amid great hoopla on a Friday. At 4:30 a.m. Sunday, fish gets a page: servers overheating. He makes the 45-minute drive to discover fire engines at the building. "The air conditioning cooked and then failed," fire chief tells fish, "causing the power to trip. The UPSs couldn't handle the load, and two of them caught fire and took out most of your equipment." Sighs fish, "It turns out that senior manager had also canceled the fire suppression system for the room and hadn't told anyone."

Just Too Careful

Several companies merge, and the newest data center among them becomes the production data center, says a pilot fish there. "However, it was originally built for a much smaller company, so it had to be immediately expanded. The racks of server, network and disk hardware grow – but the UPS and emergency generator don't get much attention. One day, with an unusually large storm on its way, a high-level manager overrides the advice of the tech support team and decides to switch the data center over to emergency power, just in case the city power is disrupted. The generator starts up fine that evening, power is switched over – and a few hours later, everything crashes. "The generator's diesel fuel had been sitting in the tank for a long time, and a sludge had accumulated in the bottom of the tank," reports fish. "When the sludge reached the fuel line and engine, it sputtered to a stop. And by the way, the city power never went out."

Unplugged

Architecture firm runs an isolated network in-house to provide visiting consultants with Internet access. One of those consultants is in to do some marketing work, and she asks for help. "We went to see what the problem was," says an IT pilot fish. "As I got around the corner, she was telling another one of the techs that she couldn't find any wireless networks, even though she was only a few feet from the access point. It became all too clear what we were dealing with when she explained, 'I even plugged a network cable in, and it still won't find any wireless networks.' "

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■ OPINION

Thornton A. May

Beware Neglect Of the Future

IS YOUR organization obsessed with cutting current costs to the point of forgetting about the future? If so, you are not alone.

At the IT Leadership Academy, we looked at more than 200 large, complex, multinational enterprises in 20 vertical markets and found that 61% of their IT shops have essentially forgotten about the future as they hunker down trying to survive the present.

As grim as that data sounds, it does leave room for a select cadre of IT leaders who consistently are able to be operationally excellent *and* future-focused simultaneously. I had a chance to talk to some of those leaders, including CIOs Ramon Baez of Kimberly-Clark, Barbra Cooper of Toyota Motor Sales U.S.A., Alan Cullop of NetJets, Bob Dowd of Sonora Quest Laboratories/Laboratory Sciences of Arizona, Thomas Murphy of AmerisourceBergen, and Rama Dhuwaraha of the Lexington-Fayette Urban County Government in Kentucky. These executives make high-value IT look easy — which we all know it is not.

I asked them why keeping the future from falling off the cognitive table was so hard for so many IT executives. I'll try to summarize what I learned.

The reason most organizations have a blind spot when it comes to the future is structural. Most organizational structures in place today are inadequate to address the challenges of the post-Internet age, and it's hard to lay the groundwork for the future when you haven't embraced the present. True, a good CIO can overcome a bad organizational structure, but not having an IT organizational structure that embraces the future destroys value, or at least delays it.

This should not be regarded as a secret. The late Alfred Chandler taught generations of business leaders at Harvard Business School the principle that "structure must follow strategy." He repeatedly stressed that organizations exist for a purpose and that the structure they take should reflect that purpose.

■ It's hard to lay the groundwork for the future when you haven't embraced the present.

But in most enterprises, senior management is incapable of replicating the single-mindedness of a commander in the field who tells his troops, "Take *that* hill." Such focus tends to occur only in crisis situations, when the enterprise's very existence is threatened. Lacking something on the order of a global economic meltdown to concentrate the mind, multinational enterprises were characterized with great insight some three-dozen years ago as a "garbage can" of problems, solutions, choice opportunities and decision-makers.

NetJets' Cullop uses the answers to these three questions as his structural compass: Where is the organization making money? Where is the organization spending money? And how is that changing? Cullop marches to the sound of the fiscal drums, making sure every single IT investment either maximizes moneymaking or optimizes money spending. In both cases, Cullop augments exceptional gut instinct with ahead-of-the curve business analytics.

He explains, "I structure IT essentially around the goal of operating what you have with excellence, with an eye toward ensuring that there are enough resources remaining to move the business forward in strategic ways."

A polypurpose enterprise requires a polypurpose IT structure. Parts of the IT organization have to be hard-wired for maximum cost-effectiveness, but other parts have to be more fluid and possess the slack resources necessary to respond to situations as they arise. In a way, CIOs have to think like the leaders of China, who found that the best way to reassimilate the former British colony of Hong Kong as part of the nation without losing its special characteristics was to rule China as one country, with two systems. In the case of IT, we need one structure, with many purposes. ■

Thornton A. May *is a longtime industry observer, management consultant and commentator. You can contact him at thorntonamay@aol.com.*

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Best Practices
IN BUSINESS INTELLIGENCE
AWARDS PROGRAM

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Computerworld's Business Intelligence Perspectives Conference proudly announces the results of this year's "Best Practices in Business Intelligence" Awards Program. This program honors IT users' "Best Practice" case studies selected from a field of qualified finalists.

Honoree Awards Recipients in each of the following categories were recognized at Computerworld's Business Intelligence Perspectives Conference in Chicago, Illinois on September 16th.

Creating an Agile BI Infrastructure

The Hartford Financial Services Company, Hartford, Connecticut

Finalists:
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- CenterPoint Properties, Oak Brook, Illinois
- Raytheon Missile Systems, Tucson, Arizona
- Royal Bank of Canada, Toronto, Ontario

Driving Process Management with BI

United States Postal Service, Washington, DC

Finalists:
- City of Chicago, Chicago, Illinois
- Lincoln Trust Company, Denver, Colorado
- New York City Department of Information Technology and Telecommunications (DoITT), New York, New York
- University of Illinois, Champaign, Illinois

Expediting Information Delivery, Retrieval, Reporting and Analysis

ARC, Arlington, Virginia

Finalists:
- Cabela's Inc., Sidney, Nebraska
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- Lincoln Trust Company, Denver, Colorado
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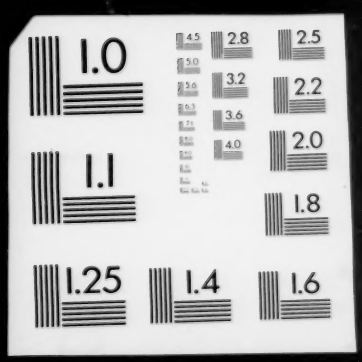
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